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AUSTROTAXACEAE, A NEW FAMILY OF PINOPHYTA

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ABSTRACT

Austrotaxaceae, the name of a monogeneric New Caledonian gymnospermous family long thought to have been validly published by Nakai (1938, 1943), is validated.

KEY WORDS: *Austrotaxaceae*, nomenclature, New Caledonia

One of the family names in current use not accounted for by Reveal & Hoogland (1990, 1991) is *Austrotaxaceae*, a monogeneric taxon of Pinophyta from the northern part of New Caledonia. The name is validated here so that it may be included in a list of vascular plant family names (Hoogland & Reveal 1993) being considered for protection under the provisions proposed by Greuter (1991) for names in current use.

Austrotaxaceae Nakai *ex* Takhtajan & Reveal, *fam. nov.* A Taxaceis strobilo masculo paniculato-spicato bracteato, bracteis stamina peltata subtendentibus, strobili foeminei cum bracteatus sterilibus spiraliter dispositis, et tracheidis marginato-punctalis haud spiraliter dispositis incrassatis diversae. - TYPE: *Austrotaxus* Compton (1922).

Austrotaxaceae was first proposed by Nakai (Tyosen-Sanrin 158:14. 1938 and Chosakuronbun Mokuroku [*Ord. Fam. Trib. Nov. App.*] 35. 1943), but the

name was a *nomen nudum*. Airy Shaw (in J.H. Willis, *Dict. Fl. Pl. Ferns*, ed. 7, 108. 1966 and ed. 8, 112. 1973), and C.R. Gunn *et al.* (U.S.D.A. Tech. Bull. 1796:11. 1992) cited the name in synonymy, while J.A. Duke (*Fam. Polyclave* A8. 1969) provided diagnostic features but gave no Latin description, so that his name is invalid (Art. 36.1; Greuter *et al.* 1988). The name was accepted by Takhtajan (*Florist. Reg. World* 310. 1986, *nom. nud.*).

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THREE NEW SUPRAFAMILIAL NAMES IN MAGNOLIOPHYTA

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ABSTRACT

Three suprafamilial names proposed by Takhtajan in 1967, *Dilleniidae*, *Dillenianae*, and *Barbeyales*, are validated here as the initially cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*.

KEY WORDS: Magnoliophyta, subclass, superorders, orders, nomenclature

In 1967, the junior author proposed a series of suprafamilial names within Magnoliophyta, basing each on "a previously and effectively published description or diagnosis" as required by Art. 32.1(c) of the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Unfortunately, three of those new names were not validated by a Latin description or diagnosis as mandated by Art. 36.1. Accordingly, the following names, long in use, are proposed again.

Dilleniidae Takhtajan *ex* Reveal & Takhtajan, *subclass. nov.* based on *Dilleniaceae* R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae").
- T.: *Dillenia* Linnaeus (1753).

Dillenianae Takhtajan *ex* Reveal & Takhtajan, *superord. nov.* based on *Dilleniaceae* R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae").
- T.: *Dillenia* Linnaeus (1753).

Barbeyales Takhtajan *ex* Reveal & Takhtajan, *ord. nov.* based on the original description of the type genus *Barbeya* Schweinfurth, *Malpighia* 5:332. 1892.; *Barbeyaceae* Rendle, 1916, *nom. cons.*

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NEW ORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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ABSTRACT

Ten ordinal names proposed by me in 1992 are validated here as the cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. Sixteen additional ordinal names discovered in the literature since 1992 are validly published: ten are members of Polypodiophyta: Aspleniales, Blechnales, Dicksoniales, Hymenophyllopsidales, Loxsomatales, Mattoniales, Negripteridales, Plagiogyriales, Platyzomatales, and Stromatopteridales. Two are referred to Pinophyta: Cephalotaxales and Sciadopityales. The remaining five are flowering plants (Magnoliophyta): Byblidales, Icinales, Myrothamnales, Rhizophorales, and Tecophilaeales.

KEY WORDS: Polypodiophyta, Pinophyta, Magnoliophyta, orders, nomenclature

In an article published in 1992, I attempted to validate numerous ordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As many of the validating descriptions I cited were in English, German, or French, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

Actinidiales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Actinidia* J. Lindley by Bentham in Bentham & Hooker, *Gen. Pl.* 1:184. 1862; *Actinidiaceae* J. Hutchinson, 1926.

Cercidiphyllales H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of type genus *Cercidiphyllum* Siebold & Zuccarini by Walpers in *Ann. Bot. Syst.* 1:364. 1848; *Cercidiphyllaceae* Engler, 1909.

Crossosomatales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Crossosoma* Nuttall by Bentham in Bentham & Hooker, *Gen. Pl.* 1:15. 1862; *Crossosomataceae* Engler, 1897.

Dioncophyllales Takhtajan *ex* Reveal, *ord. nov.* based on *Dioncophyllaceae* (Gilg) Airy Shaw in *Kew Bull.* 6:333. 1952. - T.: *Dioncophyllum* Baillon, *nom. cons.*

Eupteleales H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of the type genus *Euptelea* Zuccarini by Hooker in Bentham & Hooker, *Gen. Pl.* 1:954. 1867; *Eupteleaceae* K. Wilhelm, 1910.

Hydrostachyales Diels *ex* Reveal, *ord. nov.* based on [Podostemaceae] sub-fam. ["subordo"] *Hydrostachyoideae* ["*Hydrostachyeae*"] Weddell in Alph. de Candolle, *Prodr.* 17:86. 1873. - T.: *Hydrostachys* Du Petit-Thouars; *Hydrostachyaceae* Engler, 1898.

Lactoridales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Lactoris* R.A. Philippi by Bentham in Bentham & Hooker, *Gen. Pl.* 3:127. 1880; *Lactoridaceae* Engler, 1888.

Salvadorales R. Dahlgren *ex* Reveal, *ord. nov.* based on the description of the type genus *Salvadora* Linnaeus by Endlicher, *Gen. Pl.* [15:]1141. 1840; *Salvadoraceae* J. Lindley (1836), *nom. cons.*

Welwitschiales C. Skottsberg *ex* Reveal, *ord. nov.* based on the description of the type genus *Welwitschia* J.D. Hooker, *nom. cons.*, by Bentham in Bentham & Hooker, *Gen. Pl.* 3:417, 418. 1880; *Welwitschiaceae* Markgraf, 1926.

Winterales A.C. Smith *ex* Reveal, *ord. nov.* based on [Magnoliaceae] trib. *Wintereae* Bentham in Bentham & Hooker, *Gen. Pl.* 1:17. 1862. - T.: *Wintera* J.A. Murray, *nom. illeg.* \equiv *Drimys* J.R. & G. Forster; *Winteraceae* R. Brown *ex* Lindley, 1830.

Continued work on ordinal names has revealed others that require validation since I accounted for several in 1992. Dr. Ruurd D. Hoogland has pointed out to me that most of the ordinal names proposed by Tieghem are not validly

published as they fall afoul of Ex. 6 in Art. 18. Although Tieghem used the termination “-ales”, the names themselves were treated by Tieghem as French, and I accept Hoogland’s recommendation that such names must be considered invalid.

Aspleniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae (“Filices”)] D. Asplenieae (“Aspleniaceae”) S.F. Gray, *Nat. Arr. Brit. Pl.* 2:11. 1821 - T.: *Asplenium* Linnaeus; Aspleniaceae Newman, 1840.

Blechnales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae (“Filices”)] trib. Blechneae (“Blechnaceae”) C. Presl, *Epimel. Bot.* 103. 1851 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 6:463. 1851]. - T.: *Blechnum* Linnaeus; Blechnaceae (C. Presl) Copeland, 1947.

Byblidales Nakai *ex* Reveal, *ord. nov.* based on the original description of type genus *Byblis* R.A. Salisbury, *Parad. Lond.* 2: sub t. 95. 1808; Byblidaceae Domin, 1922.

Cephalotaxales Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Cephalotaxus* Siebold & Zuccarini *ex* Endlicher, *Gen. Pl. Suppl.* 2:27. 1842; Cephalotaxaceae Neger, 1907.

Dicksoniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae (“Filices”)] trib. Dicksonieae (“Dicksoniaceae”) C. Presl, Abh. Königl. Böhm. Ges. Wiss. ser. 4, 5: [= *Tent. Pterid.*] 133. 1836. - T.: *Dicksonia* L’Héritier.

Hymenophyllopsidales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Hymenophyllopsidaceae Pichi Sermolli, *Webbia* 24:712. 1970. - T.: *Hymenophyllum* Goebel.

Icaciales Tieghem *ex* Reveal, *ord. nov.* based on [Olacaceae (“Olacineae”)] trib. Icineae Bentham, *Trans. Linn. Soc. London* 18:679. 1841. - T.: *Iacina* A.H.L. de Jussieu.

Loxsomatales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Loxsomataceae C. Presl, *Gefässbündel Farrn* 31. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:339. 1848] (“Loxsomaceae”). - T.: *Loxsoma* R. Brown *ex* A. Cunningham, as “*Loxoma*”.

Matoniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Matoniaceae C. Presl, *Gefässbündel Farrn* 32. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:340. 1848]. - T.: *Matonia* R. Brown *ex* Wallich.

Myrothamnales Nakai *ex* Reveal, *ord. nov.* based on the description of the type genus *Myrothamnus* Welwitsch by Hooker in *Bentham & Hooker, Gen. Pl.* 1:1005. 1867; *Myrothamnaceae* Niedenzu, 1891.

Negripteridales Pichi Sermolli *ex* Reveal, *ord. nov.* based on *Negripteridaceae* Pichi Sermolli, *Nuovo Giorn. Bot. Ital. ser. 2*, 53:160. 1946. - T.: *Negripteris* Pichi Sermolli.

Plagiogyriales Pichi Sermolli *ex* Reveal, *ord. nov.* based on the original description of *Plagiogyria* Mettenius, *Abhandl. Senkenb. Ges.* 2:265. 1858; *Plagiogyriaceae* Bower, 1926.

Platyzomatales Pichi Sermolli *ex* Reveal, *ord. nov.* based on *Platyzomataceae* Nakai, *Bull. Natl. Sci. Mus.* 29:4. 1950. - T.: *Platyzoma* R. Brown.

Rhizophorales Tieghem *ex* Reveal, *ord. nov.* based on *Rhizophoraceae* R. Brown in Flinders, *Voy. Terra Austral.* 2:549. 1814 ("Rhizophoreae"). - T.: *Rhizophora* Linnaeus.

Sciadopityales Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Sciadopitys* Siebold & Zuccarini, *Fl. Jap.* 2:1. 1842; *Sciadopityaceae* Luerssen, 1877.

Stromatopteridales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Gleicheniaceae] subfam. *Stromatopteridoideae* Nakai, *Bull. Natl. Sci. Mus.* 29:32. 1950. - T.: *Stromatopteris* Mettenius; *Stromatopteridaceae* (Nakai) Bierhorst, 1968.

Tecophilaeales Traub *ex* Reveal, *ord. nov.* based on *Tecophilaeaceae* F. Leybold, *Bonplandia* 10:370. 1862, *nom. cons.* - T.: *Tecophilaea* Bertero *ex* L.A. Colla.

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NEW SUBCLASS AND SUPERORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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ABSTRACT

One subclass and four superorders proposed by me in 1992 are validated here as the cited validating descriptions cited were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. The new taxa are Lamiidae, Eucommianae, Fab-anae, Theanae, and Zingiberanae.

KEY WORDS: Magnoliophyta, subclass, superorder, nomenclature

In an article published in 1992, I attempted to validate numerous subclass and superordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As a few of the validating descriptions I cited were in English or German, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

Lamiidae Takhtajan *ex* Reveal, *subclass. nov.* based on Labiatae A.L. de Jussieu, *Gen. Pl.* 110. 1789, *nom. cons.* - T.: *Lamium* Linnaeus (1753); Lamiaceae Lindley (1836).

Eucommianae Takhtajan *ex* Reveal, *superord. nov.* based on the original description of the type genus *Eucommia* Oliver in Hooker's *Icon. Pl.* 20: t. 1950. 1890.

Fabanae R. Dahlgren *ex* Reveal, *superord. nov.* based on Class *Leguminosae* Endlicher, *Gen. Pl.* xlvii, 1253. 1841. — T.: *Faba* P. Miller (1754); *Fabaceae* Lindley (1836).

Theanae Thorne *ex* Reveal, *superord. nov.* based on Class *Lamprophyllae* Bartling, *Ord. Nat. Pl.* 225, 333. 1830. — T.: *Thea* Linnaeus (1753); *Theaceae* D. Don (1825).

Zingiberanae Takhtajan *ex* Reveal, *superord. nov.* based on Class *Scitamineae* Bartling, *Ord. Nat. Pl.* 24, 59. 1830. — T.: *Zingiber* G.R. Boehmer, *nom. cons.* (1760); *Zingiberidaceae* Lindley (1835).

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Thanks are extended to A.L. Takhtajan, B.E. Dutton, and J.H. Wiersema for reviewing the manuscript. Work on ordinal and plant family names in Europe was supported by National Science Foundation Grant BSR-8812816. This is Scientific Article A-6424, Contribution No. 8617, of the Maryland Agricultural Experiment Station and Cooperative Extension Service.

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Greuter, W., H.M. Burdet, W.G. Chaloner, V. Demoulin, R. Grolle, D.L. Hawksworth, D.H. Nicolson, P.C. Silva, F.A. Stafleu, E.G. Voss, & J. McNeill (editors.). 1988. *International Code of Botanical Nomenclature*, adopted by the Fourteenth International Botanical Congress, Berlin, July-August 1987. *Regnum Veg.* 118.

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THE CORRECT NAME OF THE NORTHERN EXPRESSION OF *SARRACENIA PURPUREA* L. (SARRACENIACEAE)

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ABSTRACT

Due to a lectotypification, and an inability to conserve the name and type of a taxon that impacts upon infraspecific nomenclature, the correct name for the northern expression of *Sarracenia purpurea* L. is not var. *purpurea* as traditionally understood but var. *terrae-novae* de la Pylaie. The southern expression of the species, known as var. *venosa* (Raf.) Fernald, must now be named var. *purpurea*.

KEY WORDS: *Sarracenia*, Sarraceniaceae, nomenclature

One of the guiding principles of systematics is that taxonomy drives nomenclature, not the other way around. The example presented here is one of those instances where differences in taxonomic opinion and an unfortunate lectotypification have resulted in a conflicting nomenclature.

In 1840, Rafinesque (p. 33) divided Linnaeus' (1753:510) *Sarracenia purpurea* L. into two species, listing *S. gibbosa* Raf. (under the orthography, *Sarazina*) as a new name for *S. purpurea* and then appended *S. grandiflora* Raf. as an alternative for that. In doing so he established the concept that *S. purpurea* applied to a northern plant that occurred from Canada to Virginia. For the southern expression, Rafinesque proposed *S. venosa* Raf.; this, he said, grew from Virginia to Florida.

Sarracenia purpurea was regarded as a widespread, albeit variable species (save for the recognition of *S. heterophylla* A. Eaton at some infraspecific rank) until 1933 when Wherry recognized two subspecies, the northern subsp. *gibbosa* (Raf.) Wherry and the southern subsp. *venosa* (Raf.) Wherry. Fernald (1936:233) subsequently proposed var. *venosa*, and Wherry (1972:146) eventually corrected the name of the northern taxon to the autonym subsp. *purpurea*.

Recognition of two expressions within *Sarracenia purpurea* has not been uniformly accepted. Bell (1949) rejected the distinction, but it was accepted

by Fernald (1950), Gleason (1952), and Gleason & Cronquist (1963, 1991). In Canada, Rousseau (1974) and Taylor & MacBryde (1977) recognized var. *purpurea*, Scoggan (1978) the f. *purpurea*, and other authors (Scoggan 1957; Looman & Best 1979; Porsild & Cody 1980; Moss 1983; Hinds 1986) defined the range of *S. purpurea* so as to exclude that of the southern var. *venosa*. Authors of several recent southeastern United States floras (Radford *et al.* 1964; Duncan & Kartesz 1981; Clewell 1985) have not recognized var. *venosa*, although it was accepted by Murry & Urbatsch (1979). A distinction between the two has long been championed by Schnell (1976, 1979, 1981) and this was accepted by Kartesz & Kartesz (1980).

One of the mysteries associated with the Linnaean herbarium is the lack of Linnaeus' specimens of *Sarracenia*. There was a genus folder but no specimens when James E. Smith purchased the herbarium (Jackson 1907). Linnaeus likely had herbarium material since *S. purpurea* was collected by Kalm (UPS), and the plant had been in cultivation since the early 1600s (Juniper *et al.* 1989:14). Nonetheless, no original Linnaean herbarium material has ever been traced. (The Kalm sheet can not be considered original material as there is no evidence that Linnaeus examined the sheet.)

Without any available specimens, McDaniel (1971:26) lectotypified *Sarracenia purpurea* on a Catesby (1738: t. 70) plate of var. *venosa*, one of only two available elements from which a selection could be made, the other being the Plukenet (1705: t. 376, f. 6; voucher: H.S. 90:59, BM-SL) figure selected by Wherry (1933:2) as the neotype (as "type"; Art. 8.3; Greuter *et al.* 1988) of var. *venosa*. McDaniel, who did not distinguish varieties, recognized that because of his typification, the northern element, if such were distinguished, would have to be called var. *terrae-novae de la Pyliae* (1827:389); however, this name has not been adopted by any modern author.

Before urging the adoption of the de la Pyliae name, should one wish to distinguish between the two expressions, a conservation proposal was prepared and submitted for review by members of the Spermatophyte Committee in the hopes of being able to conserve the name and the type of *Sarracenia purpurea* on the northern expression represented by the Kalm sheet. The argument was that the infraspecific autonym *purpurea* "has been widely and persistently used for a taxon or taxa not including its type . . ." (Art. 63) since 1971 when McDaniel lectotypified *S. purpurea* upon the southern var. *venosa*.

In this case, the effect on the rank of the taxon in question was not at the specific level, for which conservation was requested, but at an autonymic infraspecific rank, and then only when a taxonomic distinction is made between two expressions of questionable merit. In this case conservation is not possible as the type of the species (the southern expression) is still representative of the species, and therefore the specific name can not be considered under any provision in the current *Code* (Greuter *et al.* 1988) as *Sarracenia purpurea* has not been misapplied, only a variant of it has been misapplied.

If the proposal could have been adopted, the application of *Sarracenia purpurea* would have continued as currently understood in the popular (e.g., Cheers 1983; Slack 1986; McKeown 1991), garden (Hindle 1991), and technical systematic literature when the species is divided into a northern var. *purpurea* and a southern var. *venosa*. As such a proposal can not even be considered, the northern variant must be called var. *terra-novae de la Pylaie*, a name heretofore not taken up. If one were to recognize the taxon at the subspecific rank, a new combination is necessary.

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**STREPTOPUS LANCEOLATUS (AITON) REVEAL, A NEW NAME FOR
STREPTOPUS ROSEUS MICHX. (CONVALLARIACEAE)**

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ABSTRACT

Solander (*in litt.*) proposed *Uvularia lanceolata* for Newfoundland specimens gathered by Banks in 1766. When formally published by Aiton in 1789, references were made to a 1635 Cornut illustration and a 1785 Menzies introduction. The name is lectotypified here on the Banks sheet annotated by Solander, a specimen of *Streptopus roseus* Michaux. The Aiton name is transferred to *Streptopus*, as *S. lanceolatus*, and three new infraspecific combinations are proposed. The name applied to the widespread expression, *S. roseus* variety *perspectus* Fassett, becomes a synonym of variety *lanceolatus*.

KEY WORDS: *Streptopus*, *Uvularia*, nomenclature, typification, Linnaeus

The identity of *Uvularia lanceolata* Aiton (1789:434) has long been doubtful. Authorship of the name is technically attributed to Aiton (Reveal 1985, 1990), but the name and description were proposed by one of his employees, Daniel Solander (1733-1782). Solander's premature death prevented many of his scientific names from being published under his own authorship, and Stafleu & Cowan (1985:721) list no independently authored books, although numerous Solander manuscripts are extant in the Department of Botany Library at The Natural History Museum (BM) in London (Diment & Wheeler 1984).

A review of Solander's notes and specimens at BM has shown that *Uvularia lanceolata* is the earliest available name for *Streptopus roseus* Michaux (1803:201).

In April, 1766, Joseph Banks (1743-1820) set out on his first foreign scientific expedition, traveling aboard the *Niger* to St. Johns, Newfoundland (Carter

1988:32). Banks kept a journal, and recorded therein many of his acquisitions. He collected numerous plant and animal specimens during his month-long (11 May-11 June 1766) stay at St. Johns. On 11 June the *Niger* sailed to Croque Harbor at the northeast tip of the island and lay at anchor for a week (13-19 June). At both sites, Banks collected specimens Solander later annotated *Uvularia lanceolata*.

In Solander's manuscript "slip catalogue" (vol. 8, p. 537, BM) is the following entry:

lanceolata UVULARIA foliis perfoliatis ova-
to lanceolatis acuminatis.

Polygonatum ramosum flore luteo
minuj. *Cornut. can. 40. t. 41. Moris. hist.*

Habitat in Terra Labrador America
septentrionalis

Differt ab *Uvularia perfoliata* 437.2 mscr
quod Caulis ~~majis~~ ramosior festicet a
singula ala, quod flores minore, &
quid folia angustiora & acuminata.

This entry was also included in Solander's unpublished 1767 manuscript, "Descriptions of plants from various parts of the world," copied from the slip catalogue by Herman Diedrich Spöring (Marshall 1978). On the slip is a large "L," which Marshall felt alluded to specimens in the Sloane herbarium (BM-SL), and a large "+" indicating that Solander included the name in Aiton's *Hortus Kewensis*.

I have been unable to find a specimen annotated by Solander with *Uvularia lanceolata* among the more than 300 volumes of dried plants in the Sloane herbarium, but one or more probably exist. Nonetheless, on two Banks sheets now in the general herbarium (BM), Solander wrote this manuscript name. No reference was made to the Banks specimens when the name was proposed in 1789, but under Article 7.4 (Greuter *et al.* 1988), they are still "original material" as Solander examined them prior to publication, and by annotating them with his binomial, he associated the two sheets with the concept of the named taxon.

When Aiton (1789) proposed the name he cited a *Cornut* (1635:36) name and figure (t. 37) in synonymy with the comment "Introd. 1785, by Mr. Archibald Menzies." The specimen illustrated by *Cornut* in all likelihood is *Uvularia grandiflora* J.E. Smith, but what Menzies introduced is less certain.

Archibald Menzies (1754–1842), best known as the surgeon-naturalist with Colnett and later Vancouver in the Pacific Northwest, was ship's surgeon aboard HMS *Assistance* on the Halifax station in 1785 and 1786. He was a correspondent of Banks, and no doubt sent Banks seeds; Menzies certainly gave Banks live plants when he returned to England in August, 1786 (Carter 1988:222). I have not found a specimen of either *Uvularia* or *Streptopus* that I can directly attribute to Menzies, nor a cultivated specimen that I can associate with any 1785 introduction. However, there is a Labrador specimen of *Streptopus*, mounted with the Banks collection from St. Johns, that I believe is the Menzies voucher. Lysaght (1971:321) mistakenly attributed the Labrador specimen to Banks, but Banks never collected this specimen in Labrador.

The correct application of the name *Uvularia lanceolata* has long been problematic. Pursh (1814:231) considered it to be the same as *U. grandiflora* whereas Baker (1880:462) placed it in synonymy under *U. perfoliata* Linnæus. Wilbur (1963:186) expressed a "strong suspicion" that *U. lanceolata* was the first binomial for *U. grandiflora*, but the name "should remain unassigned until authentic specimens are discovered." The discovery Wilbur suggested has now been made, and as a result the following new combinations are required:

***Streptopus lanceolatus* (Aiton) Reveal, comb. nov.** BASIONYM: *Uvularia lanceolata* Aiton, *Hort. Kew.* 1:434. 1789. TYPE: CANADA. Newfoundland: in woods near Croque, 13–19 June 1766, *Banks s.n.* (LECTOTYPE [here designated]: BM).

***Streptopus roseus* Michx. var. *perspectus* Fassett**, *Rhodora* 37:109. 1935. TYPE: UNITED STATES. New Hampshire: under trees, floor of Tuckerman's Ravine, Mt. Washington, 27 June 1934, *Fassett 16422* (HOLOTYPE: WIS).

***Streptopus roseus* Michx. f. *giganteus* Fassett**, *Rhodora* 37:110. 1935. TYPE: CANADA. Quebec: Ile Nue, Archipel de Mingan, 28 July 1926, *Victorin & Rolland 24396* (HOLOTYPE: MT).

Banks does not mention specifically in his journal as having collected *Streptopus lanceolatus* at Croque. Nonetheless, he annotated the lectotype "Newfoundland in woods near Croque," and in his list of plants gathered in 1766, there is an entry that reads (mss. p. 11) "Uvularia Amplexifolia Shady Places Croque S^t Johns".

The lectotype is the widespread phase of the species, which ranges from southern Labrador to the mountains of South Carolina, westward to southern Ontario and Michigan (Fernald 1906; Fassett 1935).

Three other combinations are necessary:

Streptopus lanceolatus (Aiton) Reveal var. *curvipes* (Vail) Reveal, *comb. nov.* BASIONYM: *Streptopus curvipes* Vail in Rydberg, Bull. Torrey Bot. Club 28:267. 1901. *Streptopus roseus* Michx. var. *curvipes* (Vail) Fassett, Rhodora 37:110. 1935. TYPE: CANADA. British Columbia: Asulkan Pass, 4,400 ft., June-July 1897, Z. W. Palmer *s.n.* (HOLOTYPE: NY).

Streptopus lanceolatus (Aiton) Reveal var. *longipes* (Fernald) Reveal, *comb. nov.* BASIONYM: *Streptopus longipes* Fernald, Rhodora 8:71. 1906. *Streptopus roseus* Michx. var. *longipes* (Fernald) Fassett, Rhodora 37:110. 1935. TYPE: UNITED STATES. Michigan: Marquett Co., Turin, 5 June 1901, Barlow *s.n.* (HOLOTYPE: GH).

Streptopus lanceolatus (Aiton) Reveal var. *roseus* (Michaux) Reveal, *comb. nov.* BASIONYM: *Streptopus roseus* Michaux, *Fl. Boreali-Amer.* 1:201, t. 18. 1803. *Uvularia rosea* (Michaux) Persoon, *Syn. Pl.* 1:360. 1805. *Hexorima dichotoma* Rafinesque, Specchio 1:193. 1814, *nom. illeg.* (Art. 63.1). TYPE: UNITED STATES. Carolina: mountains, Michaux *s.n.* (HOLOTYPE: P).

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**ON THE VALID PUBLICATION OF *COLLINSIA VIOLACEA* NUTTALL
(SCROPHULARIACEAE)**

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ABSTRACT

Collinsia violacea was first proposed by Thomas Nuttall in an 1827 textbook; it was later published in an 1835 article in the *Transactions of the American Philosophical Society*. Subsequent authors have consistently attributed the name to the 1835 reference.

KEY WORDS: *Collinsia*, Scrophulariaceae, nomenclature

While reviewing the first edition of Thomas Nuttall's (1827) textbook for vascular plant family names, I chanced to spot in a paragraph on *Collinsia* the distinctive asterisk Nuttall used to denote new species. After describing the genus and *C. verna*, the type of the genus, Nuttall wrote:

A second, and very similar annual species is found on the banks of the

Arkansas, west of the Mississippi; which I propose to call *Collinsia* **violacea* from the peculiar hue of the corolla. In this species the capsule contains 8 to 12 seeds.

Nuttall described the flowers of *Collinsia verna* as "beautifully particolored, the upper lip being white, the lower a fine blue." In addition he said the capsule of *C. verna* contained "only 2 or 3 seeds." Clearly, the characterization of the flowers of *C. violacea* as violet and the notation that the capsule contains 8 to 12 seeds is sufficient to validate the name. The valid place of publication and type information is as follows:

Collinsia violacea Nuttall, *Intr. Bot.* 131. 1827. - LT.: "On the hills and upland woods of the Arkansas and Red Rivers," probably along the Poteau River above Fort Smith, Le Flore Co., Oklahoma, 26 Apr 1819, Nuttall s.n. (BM!), designated by Pennell (1935:293, as "Type", an Art. 8.4 lectotypification; see Greuter *et al.* 1988).

Pennell (1935) indicated that there was an "isotype" at PH, but I have not seen this sheet.

Until now, the authorship and place of publication for this name has been attributed (Newsom 1929; Pennell 1935) to a later article where Nuttall (1835:179) gave a full and detailed description. Both Newsom and Pennell allude to *Collinsia purpurea* Rafinesque (1824:85) as possibly being an earlier name for *C. violacea*. Pennell even lectotypifies the name on a Dr. Christian Miller "collection from the banks of the Wabash" River in Indiana, outside the known range of *C. violacea*.

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**AUTOMATICALLY TYPIFIED SUPERORDINAL AND ORDINAL NAMES FOR
THE FLOWERING PLANTS (MAGNOLIOPHYTA) AS RECOGNIZED BY
THORNE (1992) AND ARRANGED FOLLOWING THE PRINCIPLES OF
PRIORITY, AUTONYMY, AND THE SUBSTITUTION OF ALTERNATIVE
NAMES**

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ABSTRACT

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992), superordinal and ordinal names and their synonyms are arranged according to the principles of priority, autonymy, and the substitution of alternative names.

KEY WORDS: Magnoliophyta, nomenclature, classification, ordinal names

INTRODUCTION

Names above the rank of family are not subject to the rules of priority (Art. 11.4; Greuter *et al.* 1988). Nonetheless, Thorne (1992) has attempted to apply priority to ordinal names starting with Lindley (1833) even though he was aware that the majority of the names proposed by Lindley had been validly published by Dumortier (1829) four years earlier. The list of names presented below follows Thorne's classification scheme, but adopts a modified principle of priority and the notion of autonymy. The concept of substituting alternative names at the family level (Art. 18.5) is applied to superordinal and ordinal names. Also, I have retained technically illegitimate ordinal and superordinal names if the formerly illegitimate family name upon which they were based has been conserved (see App. IIB).

Thorne (1992) adopted the concept of autonyms for ordinal names even though this is not mandated by the present *Code* for names above the rank

of family. Thus, he took up Magnoliales (1838) rather than the earlier Laurales (1826) within Magnolianae. I have maintained this principle. Finally, an ordinal name is adopted only if the family name itself is accepted either because a particular family name is conserved (e.g., Saxifragales [1829] over Sedales [1828]) or because of a taxonomic decision (e.g., Asparagales [1838] over Asteliales [1829]). A series of footnotes is appended to the end of the catalogue justifying why a particular name was adopted, or noting names accepted here which are different from those given by Thorne.

The purpose of this exercise is to ascertain the nomenclatural affect of priority on names at the rank of order. If the concept of "names in current use" (Greuter 1991; Hawksworth 1991) is added to the *Code* at the forthcoming International Botanical Congress, then perhaps, in time, this concept can be expanded to include names above the rank of family. Having concentrated recently on vascular plant nomenclature at the family rank and above, I can attest to the difficulty of finding the earliest places of valid publication for these names. Rules in the *Code* are vague for names above the rank of family and will require some revision.

Thorne's (1992) treatment is particularly useful for this nomenclatural experiment in that he recognized fewer superorders and orders than his contemporaries, thereby making the impact of priority more significant on a case-by-case basis. By adopting the principle of priority, but considering it secondary to the principle of autonomy, and then accepting the principle that ordinal names based on alternative family names have equivalent priority as their alternative ordinal names, there is only minimal nomenclatural disruption. The most unfortunate name changes encountered using Thorne's (1992) recent system of classification is that Dioscoreales (1876) must be replaced by Tacciales (1829). Problems such as these can be addressed by conservation and/or the establishment of a names in current use list for ordinal names. In short, priority has little significant nomenclature impact upon the established nomenclature of ordinal names.

A catalogue of ordinal names with their full citation is now in its final stages of preparation and review. It is requested that additional names and/or corrections to the dates of publication given here be forwarded to me.

CATALOGUE OF SUPERORDINAL AND ORDINAL NAMES

I. Magnolianae Takhtajan, 1967

Nelumbonanae Takhtajan *ex Re-*
veal, 1992
Ranunculanae Takhtajan *ex Re-*
veal, 1992

I. Magnoliales Bromhead, 1838¹

Laurales Perleb, 1826
Aristolochiales Dumortier, 1829
Gyrocarpales Dumortier, 1829
Monimiales Dumortier, 1829

Piperales Dumortier, 1829
Annonales Lindley, 1833
Calycanthales C. Martius, 1835
Asarales Burnett, 1835
Canellales Cronquist, 1957
Illiciales H.H. Hu *ex* Cronquist,
 1981
Austrobaileyales Takhtajan *ex*
 Reveal, 1992
Chloranthales Conzatti & L.C.
 Smith *ex* Reveal, 1992
Eupomatiaceae Takhtajan *ex* Re-
 veal, 1992
Lactoridales Takhtajan *ex* Re-
 veal, 1993
Winterales A.C. Smith *ex* Re-
 veal, 1993

2. *Ceratophyllales* Bischoff,
 1840

3. *Nelumbonales* Burnett, 1835

4. *Paeoniales* Heintze, 1927
Glaucidiales Takhtajan *ex* Re-
 veal, 1992

5. *Berberidales* Dumortier, 1829
Podophyllales Dumortier, 1829
Ranunculales Dumortier, 1829
Papaverales Dumortier, 1829
Menispermiales Bromhead, 1838
Helleborales Nakai, 1949

II. *Nymphaeanae* Thorne *ex* Re-
 veal, 1992

6. *Nymphaeales* Dumortier,
 1829
Euryalales H.-L. Li, 1955

III. *Rafflesianae* Thorne *ex* Reveal,
 1992

7. *Rafflesiales* Oliver, 1895²
Cytinales Dumortier, 1829
Mitrastemonales Makino, 1911
Hydnorales Takhtajan *ex* Re-
 veal, 1992

IV. *Caryophyllanae* Takhtajan, 1967
 8. *Caryophyllales* Perleb, 1826

Amaranthales Dumortier, 1829
Cactales Dumortier, 1829
Chenopodiales Dumortier, 1829
Nyctaginales Dumortier, 1829
Portulacales Dumortier, 1829
Scleranthales Dumortier, 1829
Petiveriales Lindley, 1833
Sileneales Lindley, 1833
Dianthales Burnett, 1835
Atriplicales Horaninow, 1847
Opuntiales Willkomm, 1854

V. *Theanae* Thorne *ex* Reveal, 1992
Lecythidanae Takhtajan *ex* Re-
 veal, 1992
Nepenthanae Takhtajan *ex* Re-
 veal, 1992
Plumbaginanae Takhtajan *ex*
 Reveal, 1992
Polygonanae Takhtajan *ex* Re-
 veal, 1992
Primulanae R. Dahlgren *ex* Re-
 veal, 1992
Sarracenianae Thorne *ex* Re-
 veal, 1992
Dillenianae Takhtajan *ex* Re-
 veal & Takhtajan, 1993

9. *Theales* Lindley, 1833³
Hypericales Dumortier, 1829
Nepenthales Dumortier, 1829
Camelliaceae Burnett, 1835
Illiciales Burnett, 1835
Sarraceniales Bromhead, 1838
Aquifoliales Senft, 1856
Elatinales Nakai, 1949
Dilleniales Hutchinson, 1924
Medusagynales Brenan, 1952
Lecythidales Cronquist, 1957
Ancistrocladales Takhtajan *ex*
 Reveal, 1992
Actinidiales Takhtajan *ex* Re-
 veal, 1993
Dioncophyllales Takhtajan *ex*
 Reveal, 1992

Ochnales Hutchinson *ex* Reveal, 1993

Paracryphiales Takhtajan *ex* Reveal, 1992

10. **Ericales** Dumortier, 1829
Vacciniales Dumortier, 1829
Rhodorales Horaninow, 1847
Empetrales Nakai, 1930

11. **Fouquieriales** Takhtajan *ex* Reveal, 1992

12. **Styracales** Burnett, 1835
Sapotales J.D. Hooker *in* W.H. Harvey, 1868
Diospyrales Prantl, 1874
Ebenales Engler, 1892

13. **Primulales** Dumortier, 1829
Samolales Dumortier, 1829
Plumbaginales Lindley, 1833
Myrsinales Bromhead, 1838

14. **Polygonales** Dumortier, 1829
Rumicales Burnett, 1835

VI. **Celastranae** Takhtajan, 1967

15. **Celastrales** Baskerville, 1839

VII. **Malvanae** Takhtajan, 1967
Euphorbianaes Takhtajan *ex* Reveal, 1992
Rhamnanae Takhtajan *ex* Reveal, 1992
Urticanae Takhtajan *ex* Reveal, 1992

16. **Malvales** Dumortier, 1829
Tiliaceae Hutchinson, 1924

17. **Urticales** Dumortier, 1829
Ficales Dumortier, 1829
Ulmaceae Lindley, 1833

18. **Barbeyales** Takhtajan *ex* Reveal & Takhtajan, 1993

19. **Rhamnales** Dumortier, 1829
Elaeagnales Bromhead, 1838

20. **Euphorbiales** Lindley, 1833
Daphnales Lindley, 1833
Crotonales Horaninow, 1847
Thymelaeales Willkomm, 1854

Pandales Engler & Gilg, 1912-1913

Simmondsiales Reveal, 1992

VIII. **Violanae** R. Dahlgren *ex* Reveal, 1992

21. **Violales** Perleb, 1826
Cistales Reichenbach, 1828
Begoniales Dumortier, 1829
Cucurbitales Dumortier, 1829
Datiscales Dumortier, 1829
Passiflorales Dumortier, 1829
Samydales Dumortier, 1829
Turnerales Dumortier, 1829
Bixaes Lindley, 1833
Salicales Lindley, 1833
Homaliales Bromhead, 1838
Lacistematales Baskerville, 1839
Tamaricales Hutchinson, 1924
Flacourtiaceae Heintze, 1927
Caricales L. Benson, 1957

22. **Brassicales** Bromhead, 1838-1839
Resedales Dumortier, 1829
Capparales Hutchinson, 1924
Tovariales Nakai, 1943
Salvadorales R. Dahlgren *ex* Reveal, 1993

23. **Batales** Engler, 1907

IX. **Santalanae** Thorne *ex* Reveal, 1992
Balanophoranae R. Dahlgren *ex* Reveal, 1992

24. **Santalales** Dumortier, 1829
Anthobolales Dumortier, 1829
Loranthales Dumortier, 1829
Olaceales Bentham, 1862
Medusagynaes Brenan, 1952

25. **Balanophorales** Dumortier, 1829
Cynomoriaceae Burnett, 1835

X. **Geranianaes** Thorne *ex* Reveal, 1992

26. **Linales** Baskerville, 1839

27. **Rhizophorales** Tieghem

ex Reveal, 1993

28. Geriales Dumortier, 1829
Balsaminales Lindley, 1833
Oxalidales Heintze, 1927
Limnanthales Nakai, 1930
Tropaeolales Takhtajan *ex* Reveal, 1992

29. Polypetales Dumortier, 1829
Vochysiales Dumortier, 1829
Malpighiales C. Martius, 1835

XI. Rutanae Takhtajan, 1967
Fabanae R. Dahlgren *ex* Reveal, 1992

30. Rutales Perleb, 1826⁵
Papilionales Batsch, 1802
Citrales Dumortier, 1829
Sapindales Dumortier, 1829
Terebinthales Dumortier, 1829
Acerales Lindley, 1833
Coriariales Lindley, 1833
Meliiales Lindley, 1833
Connarales Burnett, 1835
Lotales Burnett, 1835
Mimosales Burnett, 1835
Aesculales Bromhead, 1838
Fabales Bromhead, 1838
Burserales Baskerville, 1839
Cassiales Horaninow, 1847
Leitneriales Engler, 1897
Julianales Engler, 1907
Moringales Nakai, 1943

XII. Proteanae Takhtajan, 1967
31. Proteales Dumortier, 1829

XIII. Rosanae Takhtajan, 1967
Hamamelidanae Takhtajan, 1967
Juglandanae Takhtajan *ex* Reveal, 1992
Podostemonanae R. Dahlgren *ex* Reveal, 1992
Trochodendranae Takhtajan *ex* Reveal, 1992

32. Hamamelidales Grisebach, 1854

Trochodendrales Takhtajan *ex* Cronquist, 1981
Cercidiphyllales H.-H. Hu *ex* Reveal, 1993
Eupteleales H.-H. Hu *ex* Reveal, 1993

33. Casuarinales Lindley, 1833

34. Balanopetales Engler, 1897
Didymelales Takhtajan, 1967
Daphniphyllales Pulle *ex* Cronquist, 1981
Buxales Takhtajan *ex* Reveal, 1992

35. Bruniales Dumortier, 1829
Roridulales Nakai, 1943
Geissolomatales Takhtajan *ex* Reveal, 1992
Hydrostachyales Diels *ex* Reveal, 1993
Myrothamnales Nakai *ex* Reveal, 1993

36. Juglandales Dumortier, 1829
Myricales Engler, 1897
Rhoipteleales Novák *ex* Reveal, 1992

37. Betulales Burnett, 1835⁶
Corylales Dumortier, 1829
Quercales Burnett, 1835
Fagales Engler, 1892

38. Rosales Perleb, 1826
Sanguisorbales Dumortier, 1829
Crossosomatales Takhtajan *ex* Reveal, 1993

39. Saxifragales Dumortier, 1829⁷
Sedales Reichenbach, 1828
Crassulales Lindley, 1833
Grossulariales Lindley, 1833
Droserales Grisebach, 1854
Diapensiales Engler & Gilg, 1924
Cephalotales Nakai, 1943
Parnassiales Nakai, 1943
Styliodiales Takhtajan *ex* Reveal, 1992

40. **Podostemales** Lindley, 1833⁸
Marathrales Dumortier, 1829

41. **Cunoniales** Hutchinson, 1924

XIV. **Aralianae** Takhtajan, 1967⁹
Cornanae Thorne *et* Reveal,
 1992
Eucommianae Takhtajan *et* Re-
 veal, 1992
Vitanae Takhtajan *et* Reveal,
 1992

42. **Brexiales** Lindley, 1833¹⁰
Hortensiales Grisebach, 1854
Hydrangeales Nakai, 1943

43. **Cornales** Dumortier, 1829
Vitales Burnett, 1835
Haloragales Bromhead, 1838
Garryales Lindley, 1846
Eucommiales Nemejc *et* Cron-
 quist, 1981
Aralidiales Takhtajan *et* Re-
 veal, 1992
Gunnerales Takhtajan *et* Re-
 veal, 1992

44. **Pittosporales** Lindley, 1833
Byblidales Nakai *et* Reveal, 1993

45. **Araliales** Burnett, 1835
Angelicales Burnett, 1835
Ammiales J.K. Small, 1903
Apiales Nakai, 1930
Torricelliales Takhtajan *et* Re-
 veal, 1992

46. **Dipsacales** Dumortier, 1829
Viburnales Dumortier, 1829
Caprifoliales Lindley, 1833
Valerianales Burnett, 1835
Lonicerales C. Baenitz, 1877
Adoxales Nakai, 1949

XV. **Asteranae** Takhtajan, 1967
Campanulanae Takhtajan *et*
 Reveal, 1992

47. **Asterales** Lindley, 1833¹¹
Ambrosiales Dumortier, 1829
Calycerales Burnett, 1835

Cardiales J.K. Small, 1903

48. **Campanulales** Reichenbach
 1828
Brunoniaceae Lindley, 1833
Goodeniaceae Lindley, 1833

XVI. **Solananae** R. Dahlgren *et* Re-
 veal, 1992

49. **Solanales** Dumortier, 1829
Boraginaceae Dumortier, 1829
Convolvulaceae Dumortier, 1829
Nolanaceae Lindley, 1833
Polemoniaceae Bromhead, 1838
Echiales Lindley, 1846

XVII. **Loasanae** R. Dahlgren *et* Re-
 veal, 1992

50. **Loasales** Bessey, 1907

XVIII. **Myrtanae** Takhtajan, 1967

51. **Myrtales** Reichenbach, 1828
Onagraceae Reichenbach, 1828
Penaeales Lindley, 1833
Oenotherales Bromhead, 1838
Combraeales Baskerville, 1839
Lythrales Oliver, 1895
Melastomatales Oliver, 1895

XIX. **Lamianae** Takhtajan, 1967¹²
Gentiananae Thorne *et* Reveal,
 1992

52. **Rubiales** Dumortier, 1829
Asclepiadaceae Dumortier, 1829
Cinchonales Lindley, 1833
Gentianales Lindley, 1833
Loganiaceae Lindley, 1833
Apocynales Bromhead, 1838
Galiales Bromhead, 1838
Vincales Horaninow, 1847
Chironiales Grisebach, 1854
Theligonales Nakai, 1942

53. **Lamiales** Bromhead, 1838¹³
Callitrichales Dumortier, 1829
Gesneriales Dumortier, 1829
Globulariales Dumortier, 1829
Jasminales Dumortier, 1829
Pinguiculales Dumortier, 1829

Rhinanthales Dumortier, 1829
Veratales Dumortier, 1829
Acanthales Lindley, 1833
Bignoniales Lindley, 1833
Lentibulariales Lindley, 1833
Oleales Lindley, 1833
Plantaginales Lindley, 1833
Scrophulariales Lindley, 1833
Hippuridales Burnett, 1835
Menthales Burnett, 1835
Ligustrales Bischoff, 1840
Verbenales Horaninow, 1847

(X. *Lilianae* Takhtajan, 1967
 54. *Liliales* Perleb, 1826
Colchicales Dumortier, 1829
Iridales Dumortier, 1829
Paridales Dumortier, 1829
Ixiales Lindley, 1836
Alstroemerales Hutchinson, 1934
Melanthiales R. Dahlgren *ex*
 Reveal, 1992
 55. *Burmanniales* Heintze, 1927
 56. *Asparagales* Bromhead, 1838¹⁴
Asteliiales Dumortier, 1829
Narcissales Dumortier, 1829
Amaryllidales Bromhead, 1840
Agavales Hutchinson, 1934
Alliales Traub, 1972
Hanguanales R. Dahlgren *ex*
 Reveal, 1992
Velloziales R. Dahlgren *ex*
 Reveal, 1992
 57. *Taccales* Dumortier, 1829¹⁵
Tamales Dumortier, 1829
Smilacales Lindley, *Niz. Pl.* 23.
 1833
Dioscoreales J.D. Hooker, 1876
 58. *Orchidales* Dumortier, 1829

XI. *Hydatellanae* Takhtajan *ex*
 Reveal, 1992
 59. *Hydatellales* Cronquist *in*
 Takhtajan, 1980

XXII. *Triuridanae* Thorne *ex* Reveal, 1992
 60. *Triuridales* J.D. Hooker *in*
 Le Maout & Decaisne, 1876

XXIII. *Alismatanae* Takhtajan, 1967
Butomanae Takhtajan *ex* Reveal, 1992
Najadanae Takhtajan *ex* Reveal, 1992
 61. *Alismatales* Dumortier, 1829¹⁶
Najadales Reichenbach, 1828
Hydrocharitales Dumortier, 1829
Butomales Hutchinson, 1934
Vallisneriales Nakai, 1949
Elodeales Nakai, 1950
 62. *Potamogetonales* Dumortier, 1829
Aponogetonales Hutchinson, 1934
Juncaginiales Hutchinson, 1934
Cymodoceales Nakai, 1943
Posidoniales Nakai, 1943
Zosterales Nakai, 1943
Ruppiales Nakai, 1950
Scheuchzeriales B. Boivin, 1956

XXIV. *Aranae* Thorne *ex* Reveal, 1992
Cyclanthanae Thorne *ex* Reveal, 1992
 63. *Arales* Dumortier, 1829
 64. *Cyclanthales* Nakai, 1930
 65. *Acorales* Burnett, 1835

XXV. *Pandanae* Thorne *ex* Reveal, 1992
 66. *Pandanales* Lindley, 1833

XXVI. *Arecanae* Takhtajan, 1967
 67. *Arecales* Bromhead, 1840¹⁷
Phoeniccales Burnett, 1835
Cocosales Nakai, 1930

XXVII. *Commelinanae* Takhtajan, 1967
Bromelianae R. Dahlgren *ex*
 Reveal, 1992
Juncanae Takhtajan, 1967

<i>Pontederianae</i> Takhtajan <i>ex</i> Reveal, 1992	<i>Zingiberales</i> Grisebach, 1854
<i>Typhanae</i> Thorne <i>ex</i> Reveal, 1992	72. Commelinaceae Dumortier 1829
<i>Zingiberanae</i> Takhtajan <i>ex</i> Reveal, 1992	<i>Ephemerales</i> Burnett, 1835
68. Bromeliales Dumortier, 1829	<i>Xyridales</i> Lindley, 1846
69. Philydrales Dumortier, 1829	<i>Eriocaulales</i> Nakai, 1930
<i>Pontederiales</i> J.D. Hooker, 1876	<i>Mayacales</i> Nakai, 1943
<i>Haemodorales</i> Hutchinson, 1934	73. Junccales Dumortier, 1829
70. Typhales Dumortier, 1829	<i>Cyperales</i> Burnett, 1835
71. Cannales Dumortier, 1829 ¹⁸	74. Poales Burnett, 1835
<i>Amomales</i> Lindley, 1833	<i>Graminales</i> Dumortier, 1829
<i>Musales</i> Burnett, 1835	<i>Avenales</i> Bromhead, 1838
	<i>Restionales</i> Perleb, 1838

NOTES

¹ The later *Magnoliales* (1838) is adopted over *Laurales* (1826) according to the principle of autonomy.

² The later *Rafflesiales* (1895) is adopted over *Cytinales* (1829) according to the principle of autonomy.

³ The later *Theales* (1833) is adopted over the earlier *Hypericales* (1829) and *Nepenthales* (1829) according to the principle of autonomy.

⁴ *Brassicales* (1838) is adopted over *Resedales* (1829) as *Brassicales* is considered to be an alternative name for the descriptive ordinal name, *Cruciferae* proposed by Perleb in 1826.

⁵ *Rutales* (1826) is retained over the earlier *Papilionales* (1802) according to the principle of autonomy.

⁶ Thorne used *Betulales* (1835), a later name than *Corylales* (1829), but as he did not accept *Corylaceae*, this name being rejected if combined with *Betulaceae* (App. IIB; Greuter *et al.* 1988), *Betulales* is retained.

⁷ *Saxifragales* (1829) is retained, rather than *Sedales* (1828) because Thorne did not accept *Sedaceae*.

⁸ *Podostemales* (1833) is retained, rather than *Marathrales* (1829) because Thorne did not accept *Marathraceae*.

⁹ *Aralianae* (1967) has priority over *Cornanae* (1992), the name adopted by Thorne.

¹⁰ *Brexiales* (1833) has priority over *Hydrangeales* (1943), the name adopted by Thorne.

¹¹ Asterales (1833) is adopted, rather than Ambrosiales (1829), according to the principle of autonomy and because Asteraceae is conserved over Ambrosiaceae (App. IIB; Greuter *et al.* 1988).

¹² Lamianae (1967) has priority over Gentiananae (1992), the name adopted by Thorne.

¹³ Lamiales (1838) is adopted over other competing names proposed in 1829 as Lamiales is an autonym of Lamianae. It may also be retained because Lamiales is an alternative name for the descriptive ordinal name, Labiatae, proposed by Dumortier in 1829. In any case, Scrophulariales (1833), adopted by Thorne, is a latter name.

¹⁴ Asparagales (1838) is retained, rather than Asteliales (1829) because Thorne did not accept Asteliaceae.

¹⁵ Tacciales (1829) has priority over both Smilacales (1833) and Dioscoreales (1876). The latter name was adopted by Thorne.

¹⁶ The later Alismatales (1829) is adopted over Najadales (1828) according to the principle of autonomy.

¹⁷ Arecales (1840) is adopted over Phoenicales (1835) because Arecales is considered to be an alternative name for the descriptive ordinal name, Palmae, proposed by Perleb in 1826, and Phoenicaceae was not accepted by Thorne.

¹⁸ Cannales (1829) has priority over Zingiberales (1854), the name adopted by Thorne, as does Musales (1835).

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A SPLITTER'S GUIDE TO THE HIGHER TAXA OF THE FLOWERING PLANTS (MAGNOLIOPHYTA) GENERALLY ARRANGED TO FOLLOW THE SEQUENCE PROPOSED BY THORNE (1992) WITH CERTAIN MODIFICATIONS

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ABSTRACT

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992b) and generally following his sequence of names but with the addition of the family names now in current use, a family system is proposed that purposefully splits the subclasses, superorders, orders, and families into small units thereby constructing a "splitter's" guide to the higher taxa of Magnoliophyta. The resulting classification recognizes 14 subclasses, 63 superorders, 248 orders, and 685 families.

KEY WORDS: Magnoliophyta, nomenclature, classification.

INTRODUCTION

Since 1959, considerable attention has been given to the classification of the flowering plants, with a large number of taxa recognized (Bedell & Reveal 1982a, b; Benson 1957; Boivin 1956; Brummitt 1992; Cronquist 1957, 1961, 1968, 1981, 1988; Cronquist *et al.* 1966; G. Dahlgren 1989a, b; R. Dahlgren 1975, 1980, 1983; R. Dahlgren & Bremer 1985; R. Dahlgren & Clifford 1982; R. Dahlgren *et al.* 1981, 1985; Deyl 1955; Dostál 1957; Ehrendorfer 1983; Engler 1964; Erdtman 1952, 1966; Gibbs 1974; Goldberg 1986, 1989; Gunn *et al.* 1992; Heywood 1978; Huber 1969; Hutchinson 1959, 1969, 1973; Kimura 1953, 1956; Mabberley 1987; Novák 1954, 1961; Pulle 1952; Rouleau 1981; Soó 1953, 1961, 1967; Stebbins, 1974; Takhtajan 1959, 1970, 1973, 1980, 1983, 1985, 1986, 1987; Thorne 1974, 1976, 1977, 1981, 1983, 1992a, 1992b; Willis 1973). Concomitant with this attention has been the realization that botanical

nomenclature ought to be stabilized as much as possible insofar as nomenclatural matters are concerned. As a result, the botanical community is now considering the concept of "names in current use" (NCU), and to that end, lists of proposed names have been circulated for comment in anticipation of a formal publication of protected names in early 1993.

My own efforts on this task have concentrated on vascular plant family names in collaboration with Dr. Ruurd D. Hoogland of the Laboratoire de Phanérogamie, Muséum National d'Histoire naturelle in Paris. To ascertain the taxonomic impact of protecting family names, we have worked closely with Richard K. Brummitt (K), the late Arthur Cronquist (NY), Aaron Goldberg (US), Armen L. Takhtajan (LE), Robert F. Thorne (RSA), and John Wiersema (USDA). To that end we have been able to resolve potential nomenclatural conflicts. The need to resolve the nomenclatural morass above the rank of family is no less important than that at the family rank and below, and while priority is not required above the rank of family, the need to have validly published names is mandated (Reveal 1992a, 1992b, 1993) and the need for a stabilized nomenclature even at these higher ranks is gradually being recognized.

In the following summary of the flowering plants (Magnoliophyta), I have adopted the general scheme proposed by Thorne (1992b), and included therein all of the proposed NCU family names. To this I have added class, subclass, superordinal, and ordinal names. I have adopted 1966 as the starting date for subclass and superordinal names, and 1789 as the starting date for ordinal and family names. To Thorne's linear arrangement of superorders, orders and families, I have added the rank of subclass used by Cronquist (1981) and Takhtajan (1987). Furthermore, as the family list accounts for all family names now in current use, I have also attempted to include all subclass, superordinal, and ordinal names now in current use. The philosophy behind the application of priority to these higher names is outlined elsewhere (Reveal 1993).

The consequences of adopting, or not adopting, the proposal put forth by Greuter (1991) regarding "names in current use" (NCU) are not all that serious insofar as flowering plant family names because so many of these names are already protected (Reveal & Hoogland, 1991). Conservation, as traditionally applied to flowering plant family names, has been to ensure that certain names are used instead of others, but not authorship or place of publication. Greuter's proposal would now protect the bibliographic information as well. Should the NCU proposals fail, we will have to editorially correct the authorship and/or bibliographic references of nearly 125 currently conserved family names on Appendix IIB of the *Code* (Greuter *et al.* 1988). And, as may be seen from the catalogue below, if the NCU proposals fail there will be a need to conserve at least ten additional names just to retain certain nonconserved names now in current use.

CATALOGUE OF THE HIGHER TAXA OF MAGNOLIOPHYTA

Magnoliophyta Cronquist, Takhtajan, & Zimmermann, 1966

Magnoliopsida Cronquist, Takhtajan, & Zimmermann, 1966

- I. Magnoliidae Novák *ex* Takhtajan, 1967
 - A. Magnolianae Takhtajan, 1967
 1. Winterales A.C. Smith *ex* Reveal
 1. Winteraceae R. Brown *ex* Lindley, 1830, *nom. cons.*
 2. Takhtajaniaceae (J. Leroy) J. Leroy, 1980
 2. Illiciales H.-H. Hu *ex* Cronquist, 1981
 3. Illiciaceae (Candolle) A.C. Smith, 1947, *nom. cons.*
 4. Schisandraceae Blume, 1830, *nom. cons.*
 3. Magnoliales Bromhead, 1837
 5. Magnoliaceae A.L. Jussieu, 1789, *nom. cons.*
 6. Liriodendraceae Barkley, 1975
 7. Degeneriaceae I. Bailey & A.C. Smith, 1942, *nom. cons.*
 8. Himantandraceae Diels, 1917, *nom. cons.*
 4. Eupomatales Takhtajan *ex* Reveal, 1992
 9. Eupomatiaceae Endlicher, 1841, *nom. cons.*
 5. Annonales Lindley, 1833
 10. Annonaceae A.L. Jussieu, 1789, *nom. cons.*

Hornschuchiaceae J. Agardh, 1858

- Monodoraceae* J. Agardh, 1858
6. Aristolochiales Dumortier, 1829
 - Asarales* Burnett, 1835
 11. Aristolochiaceae A.L. Jussieu, 1789, *nom. cons.*
7. Asaraceae Ventenat, 1799
12. Myristicaceae R. Brown, 1810, *nom. cons.*
8. Canellales Cronquist, 1957
 13. Canellaceae C. Martius, 1832, *nom. cons.*
9. Winteranaceae Warburg, 1895
10. Austrobaileyales Takhtajan *ex* Reveal, 1992
 14. Austrobaileyaceae (Croizat) Croizat, 1943, *nom. cons.*
11. Monimiales Dumortier, 1829
 15. Amborellaceae Pichon, 1948, *nom. cons.*
 16. Trimeniaceae (Janet R. Perkins & Gilg) Gibbs, 1917, *nom. cons.*
 17. Hortoniaceae (Janet R. Perkins) A.C. Smith, 1971
 18. Monimiaceae A.L. Jussieu, 1809, *nom. cons.*
 19. Atherospermataceae R. Brown, 1814
 20. Siparunaceae (A. de Candolle) Schodde, 1970
 21. Gomortegaceae Reiche, 1896, *nom. cons.*
 22. Calycanthales C. Martius, 1835
 23. Idiospermaceae S.T. Blake,

1972

23. *Calycanthaceae* Lindley, 1819, *nom. cons.*

Chimonanthaceae Perleb, 1838

Butneriaceae Barnhart, 1895, *nom. illeg.*

11. *Laurales* Perleb, 1826

24. *Lauraceae* A.L. Jussieu, 1789, *nom. cons.*

Perseaceae Horaninow, 1834

25. *Cassythaceae* Bartling ex Lindley, 1833, *nom. cons.*

26. *Hernandiaceae* Blume, 1826, *nom. cons.*

Illiciaceae Blume, 1833

12. *Gyrocarpales* Dumortier, 1829

27. *Gyrocarpaceae* Dumortier, 1829.

13. *Chloranthales* Conzatti & L.C. Smith ex Reveal, 1992

28. *Chloranthaceae* Blume, 1827, *nom. cons.*

Hedyosmaceae Caruel, 1881

14. *Lactoridales* Takhtajan ex Reveal, 1992

29. *Lactoridaceae* Engler, 1888, *nom. cons.*

15. *Piperales* Dumortier, 1829

30. *Saururaceae* Richard ex E. Meyer, 1927, *nom. cons.*

31. *Piperaceae* C. Agardh, 1824, *nom. cons.*

32. *Peperomiaceae* A.C. Smith, 1981

B. *Nelumbonanae* Takhtajan ex Reveal, 1992

16. *Ceratophyllales* Bischoff, 1840

33. *Ceratophyllaceae* Gray, 1821, *nom. cons.*

17. *Nelumbonales* Burnett, 1835

34. *Nelumbonaceae* (Candolle) Dumortier, 1829, *nom. cons.*

C. *Nymphaeanae* Thorne ex Reveal, 1992

18. *Nymphaeales* Dumortier, 1829

Euryalales H.L. Li, 1955

35. *Cabombaceae* A. Richard, 1828, *nom. cons.*

Hydropeltidaceae (Candolle) Dumortier, 1822

36. *Nymphaeaceae* R.A. Salisbury, 1805, *nom. cons.*

37. *Euryalaceae* J. Agardh, 1858.

38. *Barclayaceae* H.L. Li, 1955

D. *Rafflesianae* Thorne ex Reveal, 1992

19. *Hydnorales* Takhtajan ex Reveal, 1992

39. *Hydnoraceae* C. Agardh, 1821, *nom. cons.*

20. *Mitrastemonales* Makino, 1911

40. *Mitrastemonaceae* Makino, 1911, *nom. cons.*

21. *Rafflesiales* Oliver, 1895

Cytinales Dumortier, 1829

41. *Cytinaceae* (Brongniart) A. Richard, 1824

42. *Apodanthaceae* (R. Brown) Tieghem ex Takhtajan, 1987

43. *Rafflesiaceae* Dumortier, 1829, *nom. cons.*

II. *Ranunculidae* Takhtajan ex Reveal, 1992

E. *Ranunculanae* Takhtajan ex Reveal, 1992

22. *Paeoniales* Heintze, 1927

44. *Paeoniaceae* F. Rudolphi, 1830, *nom. cons.*

23. *Glaucidiales* Takhtajan ex Reveal, 1992

45. *Glaucidiaceae* Tamura, 1972

24. *Menispermiales* Bromhead, 1838

46. *Menispermaceae* A.L. Jussieu, 1789, *nom. cons.*

Pseliaceae Rafinesque, 1838

47. *Lardizabalaceae* Decaisne, 1839, *nom. cons.*

48. *Sargentodoxaceae* Stapf ex Hutchinson, 1926, *nom. cons.*

25. *Podophyllales* Dumortier, 1829

49. *Podophyllaceae* Candolle, 1821, *nom. cons.*

Diphyllieaceae Schultz-Schultzenstein, 1832

50. *Leonticaceae* Berchtold & J. Presl, 1820

26. *Berberidales* Dumortier, 1829

51. *Berberidaceae* A.L. Jussieu, 1789, *nom. cons.*

52. *Nandinaceae* Horaninow, 1834.

27. *Ranunculales* Dumortier, 1829

Helleborales Nakai, 1949)

53. *Hydrastidaceae* Martinov, 1820.

54. *Thalictraceae* Rafinesque, 1815

55. *Ranunculaceae* A.L. Jussieu, 1789, *nom. cons.*

Anemonaceae Vest, 1818

Clematidaceae Martinov, 1820

56. *Helleboraceae* Vest, 1818

Calthaceae Martinov, 1820

Actaeaceae Rafinesque, 1828

Nigellaceae J. Agardh, 1858

57. *Circaeasteraceae* Hutchinson, 1926, *nom. cons.*

58. *Kingdoniaceae* A.S. Foster ex Airy Shaw, 1965

28. *Papaverales* Dumortier, 1829

59. *Chelidoniaceae* Martinov, 1820

60. *Eschscholtziaceae* Seringe,

1847

61. *Papaveraceae* A.L. Jussieu, 1789, *nom. cons.*

62. *Platystemonaceae* (W.R. Ernst) A.C. Smith, 1971

63. *Pteridophyllaceae* (Murbeck) Nakai ex Reveal & Hoogland, 1991

64. *Hypecoaceae* H.M. Willkomm & J.M.C. Lange, 1880

65. *Fumariaceae* Candolle, 1821, *nom. cons.*

Corydalaceae Giseke, 1792, *nom. illeg.*

III. *Caryophyllidae* Takhtajan, 1967

F. *Caryophyllanae* Takhtajan, 1967

29. *Caryophyllales* Perleb, 1826

Scleranthales Dumortier, 1829

Silenes Lindley, 1833

Dianthales Burnett, 1835

66. *Alsinaceae* (Candolle) Bartling, 1825, *nom. cons.*

Stellariaceae Dumortier, 1822

67. *Illecebraceae* R. Brown, 1810, *nom. cons.*

Paronychiaceae A.L. Jussieu, 1815

Scleranthaceae Berchtold & J. Presl, 1820

Herniariaceae Martinov, 1820

68. *Caryophyllaceae* A.L. Jussieu, 1789, *nom. cons.*

Cerastiaceae Vest, 1818

Dianthaceae Vest, 1818

Ortegaceae Martinov, 1820

Telephiaceae Martinov, 1820

Saginaceae Sprengel ex Weinmann, 1824

Silenaceae (Candolle) Bartling, 1825

30. *Portulacales* Dumortier, 1829

69. *Portulacaceae* A.L. Jussieu, 1789, *nom. cons.*

Montiaceae Rafinesque, 1820

70. *Hectorellaceae* Philipson & Skipworth, 1961

71. *Basellaceae* Moquin-Tandon, 1840, *nom. cons.*

Anrederaceae J. Agardh, 1858

Ullucaceae Nakai, 1942

72. *Didiereaceae* Drake, 1903, *nom. cons.*

31. *Cactales* Dumortier, 1829

Opuntiales Willkomm, 1854

73. *Cactaceae* A.L. Jussieu, 1789, *nom. cons.*

Opuntiaceae Martinov, 1820

Cereaceae Candolle & Sprengel, 1821

32. *Nyctaginales* Dumortier, 1829

Petiveriales Lindley, 1833

74. *Phytolaccaceae* R. Brown, 1818, *nom. cons.*

Sarcocaceae Rafinesque, 1837

75. *Gisekiaceae* (Endlicher) Nakai, 1942

76. *Petiveriaceae* C. Agardh, 1824

Rivinaceae C. Agardh, 1824

Hilleriaceae Nakai, 1942

Seguieriaceae Nakai, 1942

77. *Agdestidaceae* Nakai, 1942

78. *Barbeuiaceae* Nakai, 1942

79. *Achatocarpaceae* Heimerl, 1934, *nom. cons.*

80. *Stegnospermataceae* (A. Richard) Nakai, 1942

81. *Nyctaginaceae* A.L. Jussieu, 1789, *nom. cons.*

Jalapaceae Batsch, 1802

Allioniaceae Horaninow, 1834

Bougainvilleaceae J. Agardh, 1858

Pisoniaceae J. Agardh, 1858

Mirabilidaceae W. Oliver, 1936

82. *Aizoaceae* F. Rudolphi,

1830, *nom. cons.*

Ficoideaceae A.L. Jussieu, 1789

Galeniaceae Rafinesque, 1819

Sesuviaaceae Horaninow, 1834

83. *Mesembryanthemaceae* Fenzl 1836

Mesembryaceae Dumortier, 1829, *nom. illeg.*

84. *Tetragoniaceae* Nakai, 1942, *nom. cons.*

85. *Halophytaceae* Soriano, 1984

86. *Molluginaceae* Hutchinson, 1926, *nom. cons.*

Pharnaceaceae Martinov, 1820

Corrigiolaceae (Dumortier) Dumortier, 1829

Glinaceae Dumortier, 1829

Adenogrammaceae (Fenzl) Nakai 1942

Polpodaceae (Fenzl) Nakai, 1942

33. *Chenopodiales* Dumortier, 1829

Atriplicales Horaninow, 1847

87. *Dysphaniaceae* Pax, 1927, *nom. cons.*

88. *Chenopodiaceae* Ventenat, 1799, *nom. cons.*

Atriplicaceae A.L. Jussieu, 1789

Corispermaceae Link, 1829

Betaceae Burnett, 1835

Blitaceae Adanson ex Post & Kuntze, 1903

89. *Salicorniaceae* Martinov, 1820

90. *Salsolaceae* Moquin-Tandon, 1849

34. *Amaranthales* Dumortier, 1829

91. *Amaranthaceae* A.L. Jussieu, 1789, *nom. cons.*

Celosiaceae Martinov, 1820

Achyranthaceae Rafinesque, 1837

Gomphrenaceae Rafinesque, 1837

Deeringiaceae J. Agardh, 1858

IV. *Dilleniidae* Takhtajan *ex* Reveal & Takhtajan, 1993

G. *Dillenianae* Takhtajan *ex* Reveal & Takhtajan, 1993

35. *Dilleniales* Hutchinson, 1924

92. *Dilleniaceae* R.A. Salisbury, 1807, *nom. cons.*

Soramiaceae Martinov, 1820

Hibbertiaceae J. Agardh, 1858

36. *Actinidiales* Takhtajan *ex* Reveal, 1992

93. *Actinidiaceae* Hutchinson, 1926, *nom. cons.*

94. *Saurauiaceae* J. Agardh, 1858, *nom. cons.*

37. *Paracryphiales* Takhtajan *ex* Reveal, 1992

95. *Paracryphiaceae* Airy Shaw, 1965

H. *Theanae* Thorne *ex* Reveal, 1992

38. *Theales* Lindley, 1833

Camelliaceae Burnett, 1835

96. *Stachyuraceae* J. Agardh, 1858, *nom. cons.*

97. *Theaceae* D. Don, 1825, *nom. cons.*

Camelliaceae Candolle, 1816

Ternstroemiacae Mirbel *ex* Candolle, 1816

Gordoniaceae (Candolle) Sprengel, 1826

Malachodendraceae J. Agardh, 1858, *nom. illeg.*

98. *Sladeniaceae* (Gilg & Wermann) Airy Shaw, 1965

99. *Asteropeiaceae* (Szyszlowicz) Takhtajan *ex* Reveal & Hoogland, 1990.

100. *Tetrameristaceae* Hutchinson, 1959

101. *Pellicieraceae* (Triana &

Planchon) L. Beauvisage *ex* Bullock, 1959

102. *Chrysobalanaceae* R. Brown, 1818, *nom. cons.*

Licaniaceae Martinov, 1820

Hirtellaceae Horaninow, 1847

103. *Symplocaceae* Desfontaines, 1820, *nom. cons.*

104. *Caryocaraceae* Szyszlowicz, 1893, *nom. cons.*

Rhizobolaceae Candolle, 1824, *nom. illeg.*

105. *Marcgraviaceae* Choisy, 1824, *nom. cons.*

106. *Oncothecaceae* Kobuski *ex* Airy Shaw, 1965

39. *Aquifoliales* Senft, 1856

107. *Aquifoliaceae* Bartling, 1830, *nom. cons.*

Illiciaceae Berchtold & J. Presl, 1820

108. *Phellinaceae* (Loesener) Takhtajan, 1967

109. *Sphenostemonaceae* P. Royen & Airy Shaw, 1972

40. *Ochnales* Hutchinson *ex* Reveal, 1992

110. *Lophiraceae* Loudon, 1830

111. *Sauvagesiaceae* (Gingins *ex* Candolle) Dumortier, 1829

112. *Ochnaceae* Candolle, 1811, *nom. cons.*

Gomphiaceae Candolle *ex* Schnizlein, 1843-1870

Luxemburgiaceae Tieghem *ex* Solereder, 1908

113. *Quinaceae* Choisy *ex* Engler, 1888, *nom. cons.*

114. *Scytopetalaceae* Engler, 1897, *nom. cons.*

Rhaptopetalaceae Tieghem *ex* Solereder, 1908

115. *Strasburgeriaceae* En-

gler & Gilg, 1924, *nom. cons.*

41. *Medusagynales* Brenan, 1952
116. *Medusagynaceae* Engler
& Gilg, 1924, *nom. cons.*

42. *Ancistrocladales* Takhtajan
ex Reveal, 1992
117. *Ancistrocladaceae* Plan-
chon *ex* Walpers, 1851, *nom.*
cons.

43. *Dioncophyllales* Takhtajan
ex Reveal, 1993
118. *Dioncophyllaceae* (Gilg)
Airy Shaw, 1952, *nom. cons.*

44. *Hypericales* Dumortier, 1829
119. *Bonnetiaceae* (Bartling)
L. Beauvisage *ex* Nakai, 1948

120. *Clusiaceae* Lindley, 1836,
nom. cons.

Guttiferae A.L. Jussieu, 1789,
nom. cons.; *nom. alt.*

Garciniaceae Bartling, 1830

Cambogiaceae Horaninow, 1834

Calophyllaceae J. Agardh, 1858

121. *Hypericaceae* A.L. Jussieu,
1789, *nom. cons.*

Ascyraceae Plenck, 1796

45. *Elatinales* Nakai, 1949
122. *Elatinaceae* Dumortier,
1829, *nom. cons.*

Cryptaceae Rafinesque, 1820

Alsinastraceae Ruprecht *ex* Bu-
bani, 1901

I. *Nepenthanae* Takhtajan *ex* Re-
veal, 1992

46. *Nepenthales* Dumortier, 1829
123. *Nepenthaceae* Dumortier,
1829, *nom. cons.*

J. *Lecythidanae* Takhtajan *ex* Re-
veal, 1992

47. *Lecythidales* Cronquist, 1957
124. *Barringtoniaceae* F. Rudol-
phi, 1830, *nom. cons.*

125. *Foetidaceae* (Nidenzu)

Airy Shaw, 1965

126. *Napoleonaeeaceae* A. Rich-
ard, 1827

Belvisiaceae R. Brown, 1821,
nom. illeg.

127. *Lecythidaceae* Poiteau,
1825, *nom. cons.*

Gustaviaceae Burnett, 1835

128. *Asteranthaceae* Knuth,
1939, *nom. cons.*

K. *Sarraceniana* Thorne *ex* Re-
veal, 1992

48. *Sarraceniales* Bromhead, 1838

129. *Sarraciaceae* Dumortier,
1829, *nom. cons.*

129a. *Heliamphoraceae* Chrtak,
Slavíková, & Studicka, 1992

L. *Ericanae* Takhtajan, 1967

49. *Ericales* Dumortier, 1829

Vacciniales Dumortier, 1829

130. *Pentaphylacaceae* En-
gler, 1897, *nom. cons.*

131. *Clethraceae* Klotzsch, 1851,
nom. cons.

132. *Cyrillaceae* Endlicher,
1841, *nom. cons.*

133. *Ericaceae* A.L. Jussieu,
1789, *nom. cons.*

Rhododendraceae A.L. Jussieu,
1789

Rhodoraceae Ventenat, 1799

Azaleaceae Vest, 1818

Ledaceae Link, 1821

Menziesiaceae Klotzsch, 1851

Salaxidaceae J. Agardh, 1858

Diplarachaceae Klotzsch, 1860

134. *Vacciniaceae* Candolle *ex*
Gray, 1821, *nom. cons.*

Andromedaceae (Endlicher) Schni-
zlein, 1843-1870

Siphonandraceae Klotzsch, 1851,
nom. illeg.

Arbutaceae J. Agardh, 1858

Arctostaphylaceae J. Agardh, 1858

135. *Pyrolaceae* Dumortier, 1829, *nom. cons.*

136. *Monotropaceae* Nuttall, 1818, *nom. cons.*

Hypopityaceae Link, 1829

137. *Epacridaceae* R. Brown, 1810, *nom. cons.*

Stypheliaceae Horaninow, 1834

138. *Prionotaceae* Hutchinson, 1969

50. *Empetrales* Nakai, 1930

139. *Empetraceae* Gray, 1821, *nom. cons.*

51. *Fouquieriales* Takhtajan *ex* Reveal, 1992

140. *Fouquieriaceae* Candolle, 1828, *nom. cons.*

52. *Ebenales* Engler, 1892

Diospyrales Prantl, 1874

141. *Ebenaceae* Gürcke, 1891, *nom. cons.*

Guaiacanaceae A.L. Jussieu, 1789

Diospyraceae Vest, 1818

142. *Lissocarpaceae* Gilg, 1924, *nom. cons.*

53. *Styracales* Burnett, 1835

143. *Styracaceae* Dumortier, 1829, *nom. cons.*

Halesiaceae D. Don, 1828

54. *Sapotales* J.D. Hooker, 1868

144. *Sapotaceae* A.L. Jussieu, 1789, *nom. cons.*

Achradaceae Vest, 1818

Bumeliaceae Barnhart, 1895

145. *Boerlagellaceae* H.J. Lam, 1925

146. *Sarcospermataceae* H.J. Lam, 1925, *nom. cons.*

M. *Primulanae* R. Dahlgren *ex* Reveal, 1992

55. *Myrsinales* Bromhead, 1838

147. *Theophrastaceae* Link, 1829, *nom. cons.*

148. *Myrsinaceae* R. Brown, 1810, *nom. cons.*

Ardisiaceae A.L. Jussieu, 1810

Embeliaceae J. Agardh, 1858

149. *Aegicerataceae* Blume, 1833

56. *Primulales* Dumortier, 1829

Samolales Dumortier, 1829

150. *Primulaceae* Ventenat, 1799, *nom. cons.*

Lysimachiaceae A.L. Jussieu, 1789

Anagallidaceae Batsch *ex* Borkhausen, 1797

Samolaceae Rafinesque, 1820

151. *Coridaceae* J. Agardh, 1858

N. *Plumbaginanae* Takhtajan *ex* Reveal, 1992

57. *Plumbaginales* Lindley, 1833

152. *Plumbaginaceae* A.L. Jussieu, 1789, *nom. cons.*

153. *Aegialitidaceae* Linczevski, 1968

154. *Limoniaceae* Seringe, 1851, *nom. cons. prop.*

Staticaceae Cassel, 1817

Armeriaceae Horaninow, 1834

O. *Polygonanae* Takhtajan *ex* Reveal, 1992

58. *Polygonales* Dumortier, 1829

155. *Polygonaceae* A.L. Jussieu, 1789, *nom. cons.*

Rumicaceae Martinov, 1820

Eriogonaceae (Dumortier) Meissner, 1841

Persicariaceae Adanson *ex* Post & Kuntze, 1903

156. *Calligonaceae* Chalkuziev, 1985

P. *Celastranae* Takhtajan, 1967

59. Celastrales Baskerville, 1839
 157. Celastraceae R. Brown, 1814, *nom. cons.*
Euonymaceae A.L. Jussieu *ex* Berchtold & J. Presl, 1820
Chingithamnaceae Handel-Mazzetti, 1932
 158. Canotiaceae Airy Shaw, 1965
 159. Hippocrateaceae A.L. Jussieu, 1811, *nom. cons.*
Salaciaceae Rafinesque, 1838
 160. Siphonodontaceae (Croizat) Gagnepain & Tardieu *ex* Tardieu, 1951, *nom. cons.*
 161. Pottingeriaceae (Engler) Takhtajan, 1987
 162. Goupiaceae Miers, 1862
 163. Lophopyxidaceae (Engler) H. Pfeiffer, 1951
 164. Stackhousiaceae R. Brown, 1814, *nom. cons.*
 Q. Malvanae Takhtajan, 1967
 60. Malvales Dumortier, 1829
Tiliales Hutchinson, 1924
 165. Sterculiaceae (Candolle) Bartling, 1830, *nom. cons.*
Triplobaceae Rafinesque, 1838
 166. Byttneriaceae R. Brown, 1814, *nom. cons.*
Hermanniae Berchtold & J. Presl, 1820
Lasiopetalaceae Reichenbach, 1823
Dombeaceae (Candolle) Bartling, 1830
Fremontiaceae J. Agardh, 1858
Helicteraceae J. Agardh, 1858
Melochiaceae J. Agardh, 1858
Theobromataceae J. Agardh, 1858
Chiranthodendraceae A. Gray, 1887
Cacaoaceae Augier *ex* Post &

Kuntze, 1903
 167. Huaceae A. Chevalier, 1947
 168. Elaeocarpaceae A.L. Jussieu *ex* Candolle, 1824, *nom. cons.*
Aristoteliaceae Dumortier, 1829
 169. Plagiopteraceae Airy Shaw, 1965
 170. Tiliaceae A.L. Jussieu, 1789, *nom. cons.*
Sparmanniaceae J. Agardh, 1858
 171. Monotaceae (Gilg) Maury *ex* Takhtajan, 1987
 172. Dipterocarpaceae Blume, 1825, *nom. cons.*
 173. Sarcolaenaceae Caruel, 1881, *nom. cons.*
Schizolaenaceae Barnhart, 1895
Rhodolaenaceae Bullock, 1958
 174. Diegodendraceae Capuron, 1964
 175. Sphaerosepalaceae Tieghem *ex* Bullock, 1959
Rhopalocarpaceae Hemsley *ex* Takhtajan, 1987
 176. Bombacaceae Kunth, 1822, *nom. cons.*
 177. Malvaceae A.L. Jussieu, 1789, *nom. cons.*
Philippodendraceae Endlicher, 1841
Fugosiaceae Martinov, 1820, *nor illeg.*
Hibiscaceae J. Agardh, 1858
Plagianthaceae J. Agardh, 1858
 R. Urticaceae Takhtajan *ex* Reveal, 1992
 61. Ulmales Lindley, 1833
Ficales Dumortier, 1829
 178. Ulmaceae Mirbel, 1815, *nom. cons.*
 179. Celtidaceae Link, 1831
 180. Moraceae Link, 1831,

nom. cons.

Artocarpaceae R. Brown, 1818

Dorsteniaceae Chevallier, 1827

Ficaceae (Dumortier) Dumortier, 1829

181. *Cecropiaceae* C.C. Berg, 1978

62. *Urticales* Dumortier, 1829

182. *Urticaceae* A.L. Jussieu, 1789, *nom. cons.*

183. *Cannabaceae* Endlicher, 1837, *nom. cons.*

Lupulaceae Link, 1829

63. *Barbeyales* Takhtajan *ex* Reveal & Takhtajan, 1993

184. *Barbeyaceae* Rendle, 1916, *nom. cons.*

S. *Rhamnanae* Takhtajan *ex* Reveal, 1992

64. *Rhamnales* Dumortier, 1829

185. *Rhamnaceae* A.L. Jussieu, 1789, *nom. cons.*

Frangulaceae Candolle, 1805

Gouaniaceae Rafinesque, 1837

Phylicaceae J. Agardh, 1858

Ziziphaceae Adanson *ex* Post & Kuntze, 1903

65. *Elaeagnales* Bromhead, 1838

186. *Elaeagnaceae* A.L. Jussieu, 1789, *nom. cons.*

Hippophaeaceae G. Meyer, 1836

E. *Euphorbianae* Takhtajan *ex* Reveal, 1992

66. *Euphorbiales* Lindley, 1833

Crotonales Horaninow, 1847

187. *Euphorbiaceae* A.L. Jussieu, 1789, *nom. cons.*

Tithymalaceae Ventenat, 1799

Mercurialaceae Martinov, 1820

Ricinaceae Martinov, 1820

Treiaceae Lindley, 1836

Tragiaceae Rafinesque, 1838

Acalyphaceae J. Agardh, 1858

Bertyaceae J. Agardh, 1858

Crotonaceae J. Agardh, 1858

Hippomanaceae J. Agardh, 1858

Ricinocarpaceae (Müller arg.) Hurusawa, 1954

188. *Phyllanthaceae* J. Agardh, 1858

Scepaceae Lindley, 1836

Aporusaceae Lindley *ex* Miquel, 1859

Porantheraceae (Pax) Hurusawa, 1954

189. *Picrodendraceae* J.K. Small *ex* Britton & Millspaugh, 1920, *nom. cons.*

Pseudanthaceae Endlicher, 1839

Micranthaceae J. Agardh, 1858

Paivaeusaceae Meeuse, 1990

190. *Androstachyaceae* Airy Shaw, 1965

191. *Bischofiaceae* (Müller arg.) Airy Shaw, 1965

192. *Hymenocardiaceae* Airy Shaw, 1965

193. *Peraceae* Klotzsch, 1859

194. *Putranjivaceae* Endlicher, 1841

195. *Stilaginaceae* J. Agardh, 1824

Antidesmataceae Loudon, 1830

196. *Uapacaceae* (Müller arg.) Airy Shaw, 1965

67. *Pandales* Engler & Gilg, 1912-1913

197. *Pandaceae* Engler & Gilg, 1913, *nom. cons.*

Bennettiaceae R. Brown *ex* Schnizlein, 1843-1870, *nom. illeg.*

198. *Dichapetalaceae* Baillon, 1886, *nom. cons.*

Chailletiaceae R. Brown, 1818

68. *Simmondsiales* Reveal, 1992

199. *Simmondsiaceae* (Müller

arg.) Tieghem *ex* Reveal & Hoogland, 1990.

69. Thymelaeales Willkomm, 1854
Daphnales Lindley, 1833

200. Gonystylaceae Gilg, 1897, *nom. cons.*

201. Aquilariaeae R. Brown, 1818

202. Thymelaeaceae A.L. Jussieu, 1789, *nom. cons.*
Daphnaceae Ventenat, 1799
Phaleriaceae Meisner, 1841

U. Violanae R. Dahlgren *ex* Reveal, 1992

70. Cistales H.G.L. Reichenbach, 1828
Bizales Lindley, 1833

203. Bixaceae Link, 1831, *nom. cons.*

204. Cochlospermaceae Planchon, 1847, *nom. cons.*

205. Cistaceae A.L. Jussieu, 1789, *nom. cons.*
Helianthemaceae G. Meyer, 1836

71. Violales Perleb, 1826

206. Violaceae Batsch, 1802, *nom. cons.*
Ionidiaceae Mertens & Koch, 1823
Leoniaceae A. de Candolle, 1844
Alsodeiaceae J. Agardh, 1858

72. Samydales Dumortier, 1829
Homaliaceae Bromhead, 1838
Flacourtiaceae Heintze, 1927

207. Berberidopsidaceae (Veldkamp) Takhtajan, 1985.

208. Aphloiaceae Takhtajan, 1985

209. Flacourtiaceae Richard *ex* Candolle, 1824, *nom. cons.*
Prockiaceae Bertuch, 1801
Homaliaceae R. Brown, 1818

210. Samydaceae Ventenat, 1808, *nom. cons.*
Blakwelliaceae Lestiboudois, 1826
nom. illeg.

211. Kiggellariaceae Link, 1831
Pangiaceae Endlicher, 1841

73. Lacistematales Baskerville, 1839

212. Lacistemataceae C. Martius, 1826, *nom. cons.*

213. Dipentodontaceae Merrill, 1941, *nom. cons.*

214. Peridiscaceae Kuhlmann, 1950, *nom. cons.*

215. Scyphostegiaceae Hutchinson, 1926, *nom. cons.*

74. Passiflorales Dumortier, 1829

216. Passifloraceae A.L. Jussieu *ex* Kunth, 1817, *nom. cons.*
Paropsiaceae Dumortier, 1829
Smeathmanniaceae C. Martius *ex* Perleb, 1838
Modeccaceae Horaninow, 1847

217. Malesherbiaceae D. Don, 1827, *nom. cons.*

218. Achariaceae H. Harms, 1897, *nom. cons.*

75. Turnerales Dumortier, 1829

219. Turneraceae Kunth *ex* Candolle, 1828, *nom. cons.*
Piriquetaceae Martinov, 1820

76. Caricales L. Benson, 1957

220. Caricaceae Dumortier, 1829, *nom. cons.*
Papayaceae Blume, 1823, *nom. illeg.*

77. Salicales Lindley, 1833

221. Salicaceae Mirbel, 1815, *nom. cons.*

78. Tamaricales Hutchinson, 1924

222. Tamaricaceae Link, 1821, *nom. cons.*
Reaumuriaceae Ehrenberg *ex* Lindley, 1830

223. Frankeniales A. de Saint-Hilaire *ex* Gray, 1821, *nom. cons.*

79. Cucurbitales Dumortier, 1829

224. Cucurbitaceae A.L. Jussieu, 1789, *nom. cons.*

Nhandirobaceae Lestiboudois, 1826

Zanoniaceae Dumortier, 1829

Bryoniaceae G. Meyer, 1836

80. Begoniales Dumortier, 1829

225. Begoniaceae J. Agardh, 1824, *nom. cons.*

81. Datiscales Dumortier, 1829

226. Daticaceae R. Brown *ex* Lindley, 1830, *nom. cons.*

227. Tetramelaceae (Warburg) Airy Shaw, 1965

82. Resedales Dumortier, 1829

228. Resedaceae Candolle *ex* Gray, 1821, *nom. cons.*

Astrocarpaceae A. Kerner, 1891

83. Tovariales Nakai, 1943

229. Tovariaceae Pax, 1891, *nom. cons.*

84. Capparales Hutchinson, 1924

230. Pentadiplandraceae Hutchinson & Dalziel, 1928

231. Koeberliniaceae Engler, 1895, *nom. cons.*

232. Capparaceae A.L. Jussieu, 1789, *nom. cons.*

233. Cleomaceae Horaninow, 1834

234. Oxystylidaceae Hutchinson, 1969

85. Brassicales Bromhead, 1838

235. Brassicaceae Burnett, 1835, *nom. cons.*

Cruciferae A.L. Jussieu, 1789, *nom. cons.; nom. alt.*

Drabaceae Martinov, 1820

Erysimumaceae Martinov, 1820

Sisymbriaceae Martinov, 1820

Thlaspiaceae Martinov, 1820

Stanleyaceae Nuttall, 1834

Raphanaceae Horaninow, 1847

86. Salvadorales R. Dahlgren *ex* Reveal, 1992

236. Salvadoraceae Lindley, 1836, *nom. cons.*

Azimaceae Wight & Gardner, 1845

237. Gyrostemonaceae Endlicher, 1841, *nom. cons.*

87. Batales Engler, 1907

238. Bataceae C. Martius *ex* Meisner, 1842, *nom. cons.*

V. Santalanae Thorne *ex* Reveal, 1992

88. Olacales Bentham, 1862

239. Olacaceae Mirbel *ex* Candolle, 1824, *nom. cons.*

Schoepfiaceae Blume, 1850

Tetrastyliidiaceae Calestani, 1905

Ximeniaceae Martinet, 1873

240. Aptandraceae Miers, 1853

241. Octoknemaceae Engler, 1909, *nom. cons.*

242. Erythropalaceae (Hasskarl) Sleumer, 1942, *nom. cons.*

243. Opiliaceae (Bentham) Valeton, 1886, *nom. cons.*

Cansjeraceae J. Agardh, 1858

244. Medusandraceae Brenan, 1952, *nom. cons.*

89. Santalales Dumortier, 1829

Anthobolales Dumortier, 1829

245. Santalaceae R. Brown, 1810, *nom. cons.*

Thesiaceae Vest, 1818

Osyridaceae Martinov, 1820

Anthobolaceae Dumortier, 1829

Canopodaceae Presl, 1851

Exocarpaceae J. Agardh, 1858

90. Loranthales Dumortier, 1829

246. Misodendraceae J. Agardh, 1858, *nom. cons.*

247. Loranthaceae A.L. Jussieu, 1808, *nom. cons.*

Elytranthaceae Tieghem *ex* Nakai, 1952

Gaiadendraceae Tieghem *ex* Nakai, 1952

Nuytsiaceae Tieghem *ex* Nakai, 1952

Psittacanthaceae Nakai, 1952

248. Eremolepidaceae Tieghem *ex* Nakai, 1952

249. Viscaceae Batsch, 1802

Phoradendraceae Karsten, 1860

Arceuthobiaceae Tieghem *ex* Nakai, 1952

Bifariaceae Nakai, 1952

Dendrophthoaceae Tieghem *ex* Nakai, 1952

Ginalloaceae Tieghem *ex* Nakai, 1952

Lepidocerataceae Nakai, 1952

W. Balanophoranae R. Dahlgren *ex* Reveal, 1992

91. Balanophorales Dumortier, 1829

250. Mystropetalaceae J.D. Hooker, 1853

251. Dactylanthaceae (Engler) Takhtajan, 1987

252. Sarcophytaceae A. Kerner, 1891

253. Heloseaceae (Schott & Endlicher) Tieghem *ex* Reveal & Hoogland, 1990

Scybalciaceae A. Kerner, 1891

254. Lophophytaceae Horaninow, 1847

255. Balanophoraceae Richard, 1822, *nom. cons.*

Langsdorffiaeae Tieghem *ex* Pilger & K. Krause, 1914

92. Cynomoriiales Burnett, 1835

256. Cynomoriaceae (C. Agardh) Lindley, 1833, *nom. cons.*

V. Hamamelididae Takhtajan, 1967

X. Trochodendranae Takhtajan *ex* Reveal, 1992

93. Trochodendrales Takhtajan *ex* Cronquist, 1981

257. Trochodendraceae Prantl, 1888, *nom. cons.*

258. Tetracentraceae A.C. Smith, 1945, *nom. cons.*

94. Eupteleales H.-H. Hu *ex* Reveal, 1992

259. Eupteleaceae K. Wilhelm, 1910, *nom. cons.*

95. Cercidiphyllales H.-H. Hu *ex* Reveal, 1992

260. Cercidiphyllaceae Engler, 1909, *nom. cons.*

Y. Hamamelidanae Takhtajan, 1967

96. Hamamelidales Grisebach, 1854

261. Platanaceae Lestiboudois *ex* Dumortier, 1829, *nom. cons.*

262. Hamamelidaceae R. Brown, 1818, *nom. cons.*

Fothergillaceae Nuttall, 1818

Parrotiaceae Horaninow, 1834

Bucklandiaceae J. Agardh, 1858, *nom. illeg.*

Disanthaceae Nakai, 1943

263. Rhodoleiaceae Nakai, 1943

264. Altingiaceae Lindley, 1846, *nom. cons.*

97. Casuarinales Lindley, 1833

265. Casuarinaceae R. Brown, 1814, *nom. cons.*

98. Buxales Takhtajan *ex* Reveal, 1992

266. Buxaceae Dumortier, 1822, *nom. cons.*

Pachysandraceae J. Agardh, 1858

267. *Stylocerataceae* (Pax)
Baillon *ex* Reveal & Hoogland, 1990

99. *Didymelales* Takhtajan, 1967

268. *Didymelaceae* Leandri, 1937

100. *Daphniphyllales* Pulle *ex* Cronquist, 1981

269. *Daphniphyllaceae* Müller arg., 1869, *nom. cons.*

101. *Balanopales* Engler, 1897

270. *Balanopaceae* Bentham, 1880, *nom. cons.*

102. *Myrothamnales* Nakai *ex* Reveal, 1993

271. *Myrothamnaceae* Niedenzu, 1891, *nom. cons.*

103. *Hydrostachyales* Diels *ex* Reveal, 1992

272. *Hydrostachyaceae* Engler, 1898, *nom. cons.*

Z. *Juglandanae* Takhtajan *ex* Reveal, 1992

104. *Rhoipteleales* Novák *ex* Reveal, 1992

273. *Rhoipteleaceae* Handel-Mazzetti, 1932, *nom. cons.*

105. *Juglandales* Dumortier, 1829

274. *Juglandaceae* A. Richard *ex* Kunth, 1824, *nom. cons.*

Platycaryaceae Nakai, 1930

Pterocaryaceae Nakai, 1930

106. *Myricales* Engler, 1897

275. *Myricaceae* Blume, 1829, *nom. cons.*, *emend. prop.*

107. *Corylales* Dumortier, 1829

Betulales Burnett, 1835

276. *Ticodendraceae* Gómez-Laurito & L.D. Gómez, 1991

277. *Betulaceae* Gray, 1821, *nom. cons.*

278. *Carpinaceae* Vest, 1818

279. *Corylaceae* Mirbel, 1815, *nom. cons.*

108. *Fagales* Engler, 1892

Quercales Burnett, 1835

280. *Nothofagaceae* Kuprianova, 1962

281. *Fagaceae* Dumortier, 1829, *nom. cons.*

Quercaceae Berchtold & J. Presl

Castaneaceae Baillon, 1878

VI. *Rosidae* Takhtajan, 1967

AA. *Geranianae* Thorne *ex* Reveal, 1992

109. *Linales* Baskerville, 1839

282. *Humiriaceae* Adr. Jussieu, 1829, *nom. cons.*

283. *Ctenolophonaceae* (H. Winkler) Exell & Mendonça, 1951

284. *Hugoniaceae* Arnott, 1834

285. *Ixonanthaceae* (Bentham) Exell & Mendonça, 1951, *nom. cons.*

286. *Linaceae* Candolle *ex* Gray, 1821, *nom. cons.*

287. *Erythroxylaceae* Kunth, 1822, *nom. cons.*

Nectaropetalaceae (Winkler) Exell & Mendonça, 1951

288. *Peganaceae* (Engler) Tieghem *ex* Takhtajan, 1987

289. *Tetradiclidaceae* (Engler) Takhtajan, 1986

290. *Tribulaceae* Trautvetter, 1853

291. *Zygophyllaceae* R. Brown, 1814, *nom. cons.*

292. *Nitrariaceae* Berchtold & J. Presl, 1820

293. *Balanitaceae* Endlicher, 1841, *nom. cons.*

110. *Rhizophorales* Tieghem *ex* Reveal, 1993

294. Rhizophoraceae R. Brown, 1814, *nom. cons.*
Mangiaceae Rafinesque, 1837
Legnotidaceae Endlicher, 1841, *nom. illeg.*
Cassipoureaeae J. Agardh, 1858
Macarisiaceae J. Agardh, 1858
111. Oxalidales Heintze, 1927
295. Oxalidaceae R. Brown, 1818, *nom. cons.*
296. Averrhoaceae Hutchinson, 1959
297. Lepidobotryaceae Léonard, 1950, *nom. cons.*
298. Hypseocharitaceae Weddell, 1861
112. Geriales Dumortier, 1829
299. Biebersteiniaceae Endlicher, 1841
300. Geraniaceae A.L. Jussieu, 1789, *nom. cons.*
Erdiaceae Horaninow, 1847
301. Dirachmaceae Hutchinson, 1959
302. Ledocarpaceae Meyen, 1834
303. Rhynchothecaceae Endlicher, 1841
304. Vivianiaceae Klotzsch, 1836
113. Balsaminales Lindley, 1833
305. Balsaminaceae A. Richard, 1822, *nom. cons.*
Hydroceraceae Blume, 1825, *nom. illeg.*
Impatientaceae Barnhart, 1895
114. Tropaeolales Takhtajan *ex* Reveal, 1992
306. Tropaeolaceae A.L. Jussieu *ex* Candolle, 1824, *nom. cons.*
Cardamindaceae Link, 1829
115. Limnanthales Nakai, 1930
307. Limnanthaceae R. Brown, 1833, *nom. cons.*
116. Malpighiales C. Martius, 1835
308. Malpighiaceae A.L. Jussieu, 1789, *nom. cons.*
117. Vochysiales Dumortier, 1829
309. Trigoniaceae Endlicher, 1841, *nom. cons.*
310. Euphroniaceae Marcano-Berti, 1989
311. Vochysiaceae A. Saint-Hilaire, 1820, *nom. cons.*
118. Polygalales Dumortier, 1829
312. Polygalaceae R. Brown, 1814, *nom. cons.*
Moutabeaceae Endlicher, 1841
313. Diclidantheraceae J. Agardh, 1858, *nom. cons.*
314. Xanthophyllaceae (Chodat) Gagnepain *ex* Reveal & Hoogland, 1990
315. Krameriaeae Dumortier, 1829, *nom. cons.*
BB. Rutanae Takhtajan, 1967
119. Rutales Perleb, 1826
Citrales Dumortier, 1829
Terebinthales Dumortier, 1829
316. Rutaceae A.L. Jussieu, 1789, *nom. cons.*
Aurantiaceae A.L. Jussieu, 1789
Citraceae Roussel, 1806
Diosmaceae R. Brown, 1814
Amyridaceae R. Brown, 1818
Dictamnaceae Vest, 1818
Zanthoxylaceae Berchtold & J. Presl, 1820
Jamboliferaceae Martinov, 1820
Fraxinellaceae Nees & C. Martius, 1823
Pteleaceae Kunth, 1824
Cuspariaceae (Candolle) Trattnick, 1825
Monieraceae Rafinesque, 1838,

nom. illeg.

Boroniaceae J. Agardh, 1858

Correaceae J. Agardh, 1858

Diplobaenaceae J. Agardh, 1858

Pilocarpaceae J. Agardh, 1858

Spatheliaceae J. Agardh, 1858

317. *Flindersiaceae* (Engler)
C. White *ex* Airy Shaw, 1965.

318. *Rhabdodendraceae* (Huber) Prance, 1968

120. *Meliales* Lindley, 1833

319. *Cneoraceae* Link, 1831,
nom. cons.

Chamaeleaceae Bertoloni, 1834,
nom. illeg.

320. *Simaroubaceae* Candolle,
1811, *nom. cons.*

Quassiacae Bertoloni, 1827

Soulameaceae Endlicher, 1841

Simabaceae Horaninow, 1847

Ailanthaceae J. Agardh, 1858

Castelaceae J. Agardh, 1858

321. *Kirkiaeae* (Engler) Takh-tajan, 1967

322. *Irvingiaceae* (Engler) Exell & Mendonça, 1951, *nom. cons.*

323. *Ptaeroxylaceae* J. Leroy, 1960

324. *Meliaceae* A.L. Jussieu, 1789, *nom. cons.*

Cedrelaceae R. Brown, 1814

Swieteniaceae Berchtold & J. Presl, 1820

Aitonaceae (Harvey) Reveal & Hoogland, 1992, *nom. cons. prop.*

121. *Burserales* Baskerville, 1839

325. *Burseraceae* Kunth, 1824,
nom. cons.

Balsameaceae Dumortier, 1829

326. *Anacardiaceae* Lindley, 1830, *nom. cons.*

Cassaviaceae A.L. Jussieu *ex* R. Brown, 1818, *nom. illeg.*

Comocladiaeae Martinov, 1820

Spondiadaceae Martinov, 1820

Vernicaceae Link, 1829

Schinaceae Rafinesque, 1837

Sumachiaceae Candolle *ex* Perleb, 1838, *nom. illeg.*

327. *Podoaceae* Baillon *ex* Franchet, 1889

328. *Pistaciaceae* C. Martius *ex* Perleb, 1838

Terebinthaceae A.L. Jussieu, 1789

Lentiscaceae Horaninow, 1843

329. *Blepharocaryaceae* Airy Shaw, 1965

330. *Tepuianthaceae* Maguire & Steyermark, 1981

122. *Julianales* Engler, 1907

331. *Julianiaceae* Hemsley, 1906, *nom. cons.*

123. *Leitneriales* Engler, 1897

332. *Leitneriaceae* Bentham, 1880, *nom. cons.*

124. *Coriariales* Lindley, 1833

333. *Coriariaceae* Candolle, 1824, *nom. cons.*

125. *Sapindales* Dumortier, 1829

334. *Dodonaeaceae* Link, 1831, *nom. cons.*

335. *Stylobasiaceae* J. Agardh, 1858

336. *Emblingiaceae* (Pax) Airy Shaw, 1965

337. *Sapindaceae* A.L. Jussieu, 1789, *nom. cons.*

Allophyllaceae Martinov, 1820

Ornithopaceae Martinov, 1820

Koelreuteriaceae J. Agardh, 1858

338. *Meliosmaceae* Endlicher, 1841

Millingtoniaceae Wight & Arnott, 1834, *nom. illeg.*

Wellingtoniaceae Meisner, 1840
 339. *Sabiaceae* Blume, 1851,
nom. cons.
 340. *Physenaceae* Takhtajan,
 1985
 341. *Melianthaceae* Link, 1831,
nom. cons.
 342. *Akaniaceae* Stapf, 1912,
nom. cons.
 343. *Bretschneideraceae* En-
 gler & Gilg, 1924, *nom. cons.*
 126. *Acerales* Lindley, 1833
Aesculales Bromhead, 1838
 344. *Hippocastanaceae* Can-
 dolle, 1824, *nom. cons.*
Aesculaceae Berchtold & J. Presl,
 1820
Paviaceae Horaninow, 1834
 345. *Aceraceae* A.L. Jussieu,
 1789, *nom. cons.*
 127. *Moringales* Nakai, 1943
 346. *Moringaceae* R. Brown
ex Dumortier, 1829, *nom. cons.*
Hyperantheraceae Link, 1829
 CC. *Fabaceae* R. Dahlgren *ex* Re-
 veal, 1992
 128. *Connarales* Burnett, 1835
 347. *Surianaceae* Arnott, 1834,
nom. cons.
 348. *Connaraceae* R. Brown,
 1818, *nom. cons.*
Cnestidaceae (Rafinesque) Rafin-
 esque, 1830
 129. *Fabales* Bromhead, 1838
Papilionales Batsch, 1802
Lotales Burnett, 1835
Mimosales Burnett, 1835
Cassiales Horaninow, 1847
 349. *Caesalpiniaceae* R. Brown,
 1814, *nom. cons.*
Cassiaceae Vest, 1818
Tamarindaceae Berchtold & J.
 Presl

Bauhiniaceae Martinov, 1820
Ceratoniaceae Link, 1829
Detariaceae (Candolle) J. Hess,
 1832
 350. *Mimosaceae* R. Brown,
 1814, *nom. cons.*
 351. *Swartziaeae* (Candolle)
 Bart-ling, 1830
 352. *Fabaceae* Lindley, 1836,
nom. cons.
Leguminosae A.L. Jussieu, 1789,
nom. cons.; *nom. alt.*
Papilionaceae Giseke, 1792, *nom.*
cons.; *nom. alt.*
Robiniaceae Vest, 1818
Viciaceae Berchtold & J. Presl,
 1820
Aspalathaceae Martinov, 1820
Astragalaceae Martinov, 1820
Coronillaceae Martinov, 1820
Galedupaceae Martinov, 1820,
nom. illeg.
Sophoraceae Sprengel *ex* Wein-
 mann, 1824
Hedysaraceae Oken, 1826
Lotaceae Oken, 1826
Lathyraceae Burnett, 1835
Phaseolaceae Schnizlein, 1843-
 1870
Ciceraceae W. Steele, 1847
 DD. *Proteanae* Takhtajan, 1967
 130. *Proteales* Dumortier, 1829
 353. *Proteaceae* A.L. Jussieu,
 1789, *nom. cons.*
Embothriaceae Sprengel *ex* Wein-
 mann, 1824
Lepidocarpaceae Schultz-Schult-
 zenstein, 1832, *nom. illeg.*
 EE. *Rosanae* Takhtajan, 1967
 131. *Rosales* Perleb, 1826
Sanguisorbales Dumortier, 1829
 354. *Rosaceae* A.L. Jussieu,
 1789, *nom. cons.*

Spiraeaceae Bertuch, 1801

Poteriaceae Rafinesque, 1815

Fragariaceae Richard *ex* Nestler, 1816

Alchemillaceae Martinov, 1820

Tomentillaceae Martinov, 1820

Sanguisorbaceae Marquis, 1820

Agrimonyaceae Gray, 1821

Dryadaceae Gray, 1821

Ulmariaceae Gray, 1821

Potentillaceae Sprengel *ex* Weinmann, 1824

Quillajaceae D. Don, 1831

Neilliaceae Miquel, 1855

Cercocarpaceae J. Agardh, 1858

Coleogynaceae J. Agardh, 1858

Lindleyaceae J. Agardh, 1858

Rhodotypaceae J. Agardh, 1858

355. *Amygdalaceae* (A.L. Jussieu) D. Don, 1825, *nom. cons.*

Prunaceae Berchtold & J. Presl, 1820

356. *Malaceae* J.K. Small *ex* Britton, 1903, *nom. cons.*

Pyraceae Vest, 1818

Mespilaceae Schultz-Schultzenstein, 1832

Cydoniaceae Schnizlein, 1858

357. *Neuradaceae* Link, 1829, *nom. cons. prop.*

Griplaceae Martinov, 1820

132. *Crossosomatales* Takhtajan *ex* Reveal, 1992

358. *Crossosomataceae* Engler, 1897, *nom. cons.*

133. *Crassulales* Lindley

Sedales Reichenbach, 1828

359. *Tetracarpaceae* Nakai, 1943

360. *Crassulaceae* Candolle, 1805, *nom. cons.*

Sempervivaceae A.L. Jussieu, 1789

Sedaceae Roussel, 1806

Cotyledonaceae Martinov, 1820

Rhodiolaceae Martinov, 1820

Tillaeaceae Martinov, 1820

134. *Cephalotales* Nakai, 1943

361. *Cephalotaceae* Dumortier, 1829, *nom. cons.*

135. *Saxifragales* Dumortier, 1829

362. *Penthoraceae* Rydberg *ex* Britton, 1901, *nom. cons.*

363. *Saxifragaceae* A.L. Jussieu, 1789, *nom. cons.*

Pectiantiaceae Rafinesque, 1837

136. *Grossulariales* Lindley, 1833

364. *Grossulariaceae* Candolle, 1805, *nom. cons.*

Ribesiaceae Marquis, 1820

137. *Parnassiales* Nakai, 1943

365. *Francoaceae* Adr. Jussieu, 1832, *nom. cons.*

366. *Vahliaceae* Dandy, 1959

367. *Eremosynaceae* Dandy, 1959

368. *Lepuropetalaceae* (Engler) Nakai, 1943

369. *Parnassiaceae* Gray, 1821, *nom. cons.*

370. *Greyiaceae* Hutchinson, 1926, *nom. cons.*

138. *Droserales* Grisebach, 1854

371. *Droseraceae* R.A. Salisbury, 1808, *nom. cons.*

372. *Drosophyllaceae* Chrték, Slavíková, & Studicka, 1989

373. *Dionaeaceae* Rafinesque, 1837

374. *Aldrovandaceae* Nakai, 1949

139. *Styliiales* Takhtajan *ex* Reveal, 1992

375. *Donatiaceae* Hutchinson, 1959, *nom. cons., emend. prop.*

376. *Styliaceae* R. Brown,

1810, *nom. cons.*

Candolleaceae Mueller, 1882-1883, *nom. illeg.*

140. *Diapensiales* Engler & Gilg, 1924

377. *Diapensiaceae* (Link) Lindley, 1836, *nom. cons.*

Galacaceae D. Don, 1827

141. *Roridulales* Nakai, 1943

378. *Roridulaceae* Engler & Gilg, 1924, *nom. cons.*

142. *Bruniales* Dumortier, 1829

379. *Anisophylleaceae* Ridley, 1922

Polygonanthaceae Croizat, 1943

380. *Bruniaceae* R. Brown *ex* Candolle, 1825, *nom. cons.*

Berzeliiaceae Nakai, 1943

381. *Grubbiaceae* Endlicher, 1839, *nom. cons.*

Ophiraceae Arnott, 1841

143. *Geissolomatales* Takhtajan *ex* Reveal, 1992

382. *Geissolomataceae* Endlicher, 1841, *nom. cons.*

144. *Cunoniales* Hutchinson, 1924

383. *Cunoniaceae* R. Brown, 1814, *nom. cons.*

Belangeraceae J. Agardh, 1858

Callicomaceae J. Agardh, 1858

384. *Baueraceae* Lindley, 1830

385. *Eucryphiaceae* Endlicher, 1841, *nom. cons.*

386. *Brunelliaceae* Engler, 1897, *nom. cons.*

387. *Davidsoniaceae* Bange, 1952

388. *Staphyleaceae* (Candolle) Lindley, 1829, *nom. cons.*

Ochranthaceae Lindley *ex* Endlicher, 1841

389. *Tapisciaceae* (Pax) Takhtajan, 1987

FF. *Vitanae* Takhtajan *ex* Reveal 1992

145. *Vitales* Burnett, 1835

390. *Vitaceae* A.L. Jussieu 1789, *nom. cons.*

Ampelopsidaceae Kosteletzky 1835

Cissaceae Horaninow, 1847

Pterisanthaceae J. Agardh, 1858

391. *Leeaceae* (Candolle) Dumortier, 1829, *nom. cons.*

GG. *Cornanae* Thorne *ex* Reveal 1992

146. *Hydrangeales* Nakai, 1943

392. *Philadelphaceae* Martinov, 1820

393. *Hydrangeaceae* Dumortier 1829, *nom. cons.*

Hortensiaceae Berchtold & J. Presl, 1820

Kirengeshomaceae Nakai, 1943

394. *Escalloniaceae* R. Brown *ex* Dumortier, 1829, *nom. cons.*

395. *Argophyllaceae* (Engler) Takhtajan, 1987

396. *Iteaceae* J. Agardh, 1858, *nom. cons.*

397. *Tribelaceae* (Engler) Airy Shaw, 1965

398. *Dulongiaceae* J. Agardh, 1858, *nom. cons. prop.*

Phyllonomataceae J.K. Small, 1905, *nom. rej. prop.*

399. *Pterostemonaceae* J.K. Small, 1905, *nom. cons.*

400. *Griseliniaeae* (Wangerin) Takhtajan, 1987

401. *Carpodetaceae* Fenzl, 1841

402. *Alseuosmiaceae* Airy Shaw, 1965

403. *Montiniaceae* Nakai, 1943, *nom. cons.*

404. *Melanophyllaceae* Takhtajan, 1987

jan ex Airy Shaw, 1972

406. Rousseaceae Candolle, 1839

407. Columelliaceae D. Don, 1828, *nom. cons.*

408. Desfontainiaceae Endlicher, 1841

147. Brexiales Lindley, 1833

405. Brexiaceae Loudon, 1830.

Izerbaceae Grisebach, 1854

148. Gunnerales Takhtajan ex Reveal, 1992

409. Gunneraceae Meisner, 1842, *nom. cons.*

149. Haloragales Bromhead, 1838

410. Haloragaceae R. Brown, 1814, *nom. cons.*

Cercodiaceae A.L. Jussieu, 1817

411. Myriophyllaceae Schultz-Schultzenstein, 1832

150. Cornales Dumortier, 1829

412. Davidiaceae (H. Harms) H.L. Li, 1955

413. Nyssaceae A.L. Jussieu ex Dumortier, 1829, *nom. cons.*

414. Mastixiaceae Calestani, 1905

415. Cornaceae (Dumortier) Dumortier, 1829, *nom. cons.*

416. Curtisiaceae (H. Harms) Takhtajan, 1987

417. Alangiaceae Candolle, 1828, *nom. cons.*

418. Aucubaceae J. Agardh, 1858

151. Garryales Lindley, 1846

419. Garryaceae Lindley, 1834, *nom. cons.*

152. Aralidiales Takhtajan ex Reveal, 1992

420. Aralidiaceae Philipson & Stone, 1980

HH. Eucommianae Takhtajan ex Reveal, 1992

153. Eucommiales Nemejc ex Cronquist, 1981

421. Eucommiaceae Engler, 1909, *nom. cons.*

154. Icacinales Tieghem ex Reveal, 1993

422. Icacinaceae (Bentham) Miers, 1851, *nom. cons.*

Phytocrenaceae Arnott ex Brown, 1852

Pennantiaceae J. Agardh, 1858

423. Metteniusaceae Schnizlein, 1843-1870

424. Corynocarpaceae Engler, 1897, *nom. cons.*

425. Cardiopteridaceae Blume, 1849, *nom. cons.*

Peripterygiaceae F.N. Williams, 1905

426. Aextoxicaceae Engler & Gilg, 1920, *nom. cons.*

155. Pittosporales Lindley, 1833

427. Pittosporaceae R. Brown, 1814, *nom. cons.*

156. Byblidales Nakai ex Reveal, 1993

428. Byblidaceae Domin, 1922, *nom. cons.*

429. Tremandraceae R. Brown ex Candolle, 1824, *nom. cons.*

II. Podostemonanae R. Dahlgren ex Reveal, 1992

157. Podostemales Lindley, 1833

Marathrales Dumortier, 1829

430. Podostemaceae Richard ex C. Agardh, 1822, *nom. cons.*

Marathraceae Dumortier, 1829

431. Tristichaceae J.C. Willis, 1915

Philocrenaceae Bongard, 1834

JJ. Aralianae Takhtajan, 1967

158. *Torricelliales* Takhtajan *ex*
Reveal, 1992

432. *Helwingiaceae* Decaisne,
1836

433. *Torricelliaceae* (Wangerin)
H.H. Hu, 1934

159. *Araliales* Burnett, 1835
Angelicales Burnett, 1835
Ammiales J.K. Small, 1903
Apiales Nakai, 1930

434. *Araliaceae* A.L. Jussieu,
1789, *nom. cons.*

Hederaceae Giseke, 1792

Botryodendraceae J. Agardh,
1858

435. *Hydrocotylaceae* (Drude)
N. Hylander, 1945, *nom. cons.*

436. *Saniculaceae* (Drude) A.
Löve & D. Löve, 1974

Eryngiaceae Rafinesque, 1838

437. *Apiaceae* Lindley, 1836,
nom. cons.

Umbelliferae A.L. Jussieu, 1789,
nom. cons.; *nom. alt.*

Angelicaceae Martinov, 1820

Bupleuraceae Martinov, 1820

Daucaceae Martinov, 1820

Imperatoriaceae Martinov, 1820

Pastinacaceae Martinov, 1820

Coriandraceae Burnett, 1835

Smyrniaceae Burnett, 1835

Ammiaceae (J. Presl & Presl)
Barnhart, 1895

160. *Caprifoliales* Lindley, 1833
Lonicerales C. Baenitz, 1877

438. *Caprifoliaceae* A.L. Jussieu,
1789, *nom. cons.*

Loniceraceae Vest, 1818

439. *Carlemanniaceae* Airy
Shaw, 1965

161. *Viburnales* Dumortier, 1829
Adoxales Nakai, 1949

440. *Adoxaceae* Trautvetter,

1853, *nom. cons.*

441. *Sambucaceae* Batsch
Borck-hausen, 1797

442. *Viburnaceae* Rafinesqu,
1820

Tinaceae Martinov, 1820

162. *Valerianales* Burnett, 18

443. *Valerianaceae* Batsch
1802, *nom. cons.*

444. *Triplostegiaceae* (Höc)
Bobrov *ex* Airy Shaw, 19

163. *Dipsacales* Dumortier, 18

445. *Dipsacaceae* A.L. Jussi
1789, *nom. cons.*

Scabiosaceae Adanson *ex* Po
& Kuntze, 1903

446. *Morinaceae* Rafinesqu,
1820

VII. *Asteridae* Takhtajan, 1967

KK. *Asteranae* Takhtajan, 196

164. *Calycerales* Burnett, 183

447. *Calyceraceae* R. Brov
ex Richard, 1820, *nom. co*

Boopidaceae Cassini, 1816

165. *Asterales* Lindley, 1833

Ambrosiales Dumortier, 182

Carduales J.K. Small, 1903

448. *Cichoriaceae* A.L. Jussi
1789, *nom. cons.*

Cynaraceae A.L. Jussieu, 17

Cnicaceae Vest, 1818

Centaureaceae Martinov, 18

Lapsanaceae Martinov, 1820

Picridaceae Martinov, 1820

Serratulaceae Martinov, 182

Echinopaceae Dumortier, 182

Acarnaceae Link, 1829

Perdiciaceae Link, 1829

Carduaceae Dumortier, 182

Mutisiaceae Burnett, 1835

Nassauviaceae Burmeister, 1

Lactucaceae Drude, 1879

Arctotidaceae Bessey, 1914

449. Asteraceae Dumortier, 1822, *nom. cons.*
Compositae Giseke, 1792, *nom. cons., nom. alt.*
Tanacetaceae Vest, 1818
Anthemidaceae Martinov, 1820
Artemisiaceae Martinov, 1820
Athanasiaceae Martinov, 1820
Eupatoriaceae Martinov, 1820
Santolinaceae Martinov, 1820
Heleniaceae Rafinesque, 1824
Calendulaceae Link, 1829
Coreopsidaceae Link, 1829
Helichrysideae Link, 1829
Partheniaceae Link, 1829
Helianthaceae Dumortier, 1829
Gnaphaliaceae F. Rudolphi, 1830
Senecionaceae Spenner, 1834
Vernoniaceae Burmeister, 1837
Matricariaceae Voigt, 1845
Inulaceae Bessey, 1914
450. Ambrosiaceae Dumortier, 1829, *nom. cons., emend. prop.*
Xanthiaceae Vest, 1818
LL. Campanulanae Takhtajan *ex Reveal*, 1992
166. Campanulales Reichenbach, 1828
451. Menyanthaceae (Dumortier) Dumortier, 1829, *nom. cons.*
452. Pentaphragmataceae J. Agardh, 1858, *nom. cons.*
453. Sphenocleaceae C. Martius *ex Candolle*, 1839, *nom. cons.*
Pongatiaceae Meisner, 1839, *nom. illeg.*
454. Campanulaceae A.L. Jussieu, 1789, *nom. cons.*
Jasionaceae Dumortier, 1829
Cyananthaceae J. Agardh, 1858
455. Cyphiaceae A. de Can-

dolle, 1839
456. Nemacladaceae Nuttall, 1843
457. Lobeliaceae R. Brown, 1817, *nom. cons.*
458. Cyphocarpaceae Miers, 1848
167. Goodeniales Lindley, 1833
Brunoniales Lindley, 1833
459. Goodeniaceae R. Brown, 1810, *nom. cons.*
Scaevolaceae Lindley, 1830
460. Brunoniaceae Dumortier, 1829, *nom. cons.*
VIII. Lamiidae Takhtajan *ex Reveal*, 1992
MM. Solananae R. Dahlgren *ex Reveal*, 1992
168. Solanales Dumortier, 1829
461. Solanaceae A.L. Jussieu, 1789, *nom. cons.*
Hyoscyamaceae Vest, 1818
Atropaceae Martinov, 1820
Nicotianaceae Martinov, 1820
Daturaceae Rafinesque, 1828
Cestraceae Schlechtendal, 1833
Lyciaceae Rafinesque, 1840
462. Salpiglossidaceae (Benth.) Hutchinson, 1969.
463. Sclerophylacaceae Miers, 1848
464. Duckeodendraceae Kuhlmann, 1950
465. Goetzeaceae Miers *ex Airy Shaw*, 1965
169. Nolanales Lindley, 1833
466. Nolanaceae Dumortier, 1829, *nom. cons.*
170. Convolvulales Dumortier, 1829
467. Erycibaceae Endlicher, 1840
468. Humbertiaceae Pichon,

1947, *nom. cons.*

469. Convolvulaceae A.L. Jussieu, 1789, *nom. cons.*

Cressaceae Rafinesque, 1821

Poranaceae J. Agardh, 1858

470. Dichondraceae Dumortier, 1829, *nom. cons.*

471. Cuscutaceae (Dumortier) Dumortier, 1829, *nom. cons.*

171. Boraginales Dumortier, 1829

Echiales Lindley, 1846

472. Hydrophyllaceae R. Brown *ex* Ker-Gawler, 1817, *nom. cons.*

Ellisiaceae Berchtold & J. Presl, 1820

Hydroleaceae Berchtold & J. Presl, 1820

Sagoneaceae Martinov, 1820

Eutocaceae Horaninow, 1847

473. Ehretiaceae C. Martius *ex* Lindley, 1830, *nom. cons.*

474. Cordiaceae R. Brown *ex* Dumortier, 1829, *nom. cons.*

Sebestenaceae Ventenat, 1799

475. Heliotropiaceae Schrader, 1820, *nom. cons.*

476. Boraginaceae A.L. Jussieu, 1789, *nom. cons.*

Buglossaceae Hoffmannsegg & Link, 1810

Anchusaceae Vest, 1818

Cerinthaceae Martinov, 1820

Onosmaceae Martinov, 1820

Echiaceae Rafinesque, 1837

477. Wellstediaceae (Pilger) Novák, 1943

478. Hoplestigmataceae Gilg, 1924, *nom. cons.*

479. Lennoaceae Solms-Laubach, 1870, *nom. cons.*

480. Tetrachondraceae Wettstein, 1924

172. Polemoniales Bromhead, 1838

481. Cobaeaceae D. Don, 1824

482. Polemoniaceae A.L. Jussieu, 1789, *nom. cons.*

NN. Loasanae R. Dahlgren *ex* Reveal, 1992

173. Loasales Bessey, 1907

483. Loasaceae Dumortier, 1822, *nom. cons.*

Gronoviaceae Endlicher, 1841

Cevalliacae Grisebach, 1854

OO. Myrtanae Takhtajan, 1967

174. Lythrales Oliver, 1895

484. Psiloxylonaceae Croizat, 1961

485. Heteropyxidaceae Engler & Gilg, 1920, *nom. cons.*

486. Lythraceae Jaume Saint-Hilaire, 1805, *nom. cons.*

Salicariaceae A.L. Jussieu, 1789

Ammanniaceae Horaninow, 1834

Lagerstroemiaceae J. Agardh, 1858

Lawsoniaceae J. Agardh, 1858

487. Duabangaceae Takhtajan, 1986

488. Sonneratiaceae Engler & Gilg, 1924, *nom. cons.*

Blattiaceae Niedenzu, 1892

489. Punicaceae Horaninow, 1834

490. Alzateaceae S. Graham, 1985

491. Rhynchocalycaceae L. Johnson & B. Briggs, 1985.

492. Trapaceae Dumortier, 1829, *nom. cons.*

493. Crypteroniaceae A. de Candolle, 1868, *nom. cons.*

Henslowiaceae Lindley, 1835

175. Penaeales Lindley, 1833

494. Penaeaceae Sweet *ex* Guille-

min, *nom. cons.*

495. Oliniaceae Harvey & Sonder, 1862, *nom. cons.*

176. Melastomatales Oliver, 1895

496. Melastomataceae A.L. Jussieu, 1789, *nom. cons.*

Rhexiaceae Dumortier, 1822

Miconiaceae Koch, 1857

Blakeaceae Reichenbach *ex* Bartsch, 1895

497. Memecylaceae Candolle, 1828

Mouririaceae Gardner, 1849, *nom. illeg.*

177. Combretales Baskerville, 1839

498. Combretaceae R. Brown, 1810, *nom. cons.*

Terminaliaceae Jaume Saint-Hilaire, 1805

Myrobalanaceae Martinov, 1820

Bucidaceae Sprengel *ex* Weinmann, 1824

Sheadendraceae Bertoloni f., 1850

178. Onagrales Reichenbach, 1828

Oenotherales Bromhead, 1838

499. Onagraceae A.L. Jussieu, 1789, *nom. cons.*

Epilobiaceae Ventenat, 1799

Oenotheraceae Robin, 1807

Isnardiaceae Martinov, 1820

Jussiaeaceae Martinov, 1820

Circaeaceae Lindley, 1829

179. Myrtales Reichenbach, 1828

500. Myrtaceae A.L. Jussieu, 1789, *nom. cons.*

Myrrhiniaceae Arnott, 1839

Kaniaceae Nakai, 1943

501. Leptospermaceae F. Rudolfi, 1830

Melaleuaceae Vest, 1818

Chamelauciaceae Candolle *ex* F. Rudolfi, 1830

PP. Gentiananae Thorne *ex* Reveal, 1992

180. Loganiales Lindley, 1833

502. Loganiaceae R. Brown *ex* C. Martius, 1827, *nom. cons.*

503. Strychnaceae Candolle *ex* Perleb, 1826

Gardneriaceae Wallich *ex* Perleb, 1838

504. Potaliaceae C. Martius, 1827

505. Spigeliaceae C. Martius, 1827

506. Antoniaceae Hutchinson, 1959

507. Plocospermataceae Hutchinson, 1973

181. Rubiales Dumortier, 1829

Cinchonales Lindley, 1833

Galiales Bromhead, 1838

508. Naucleaceae (Candolle) Wernham, 1911

Cinchonaceae Batsch, 1802

Cephalanthaceae Rafinesque, 1820

Sabiceaceae Martinov, 1820

509. Rubiaceae A.L. Jussieu, 1789, *nom. cons.*

Coffeaceae Batsch, 1802

Guettardaceae Batsch, 1802

Aparinaceae Hoffmannsegg & Link, 1813-1820

Operculariaceae A.L. Jussieu *ex* Perleb, 1818

Catesbaeaceae Martinov, 1820

Coutareaceae Martinov, 1820

Nonatiaceae Martinov, 1820

Hydrophylaceae Martinov, 1820

Pagamaeaceae Martinov, 1820

Randiaceae Martinov, 1820

Spermacoceaceae Sprengel *ex* Weinmann, 1824

Gardeniaceae Dumortier, 1829

Hedyotidaceae Dumortier, 1829
Lygodisodeaceae Bartling, 1830
Psychotriaceae F. Rudolphi, 1830
Asperulaceae Spenner, 1835
Galiaceae Lindley, 1836
Lippayaceae Meisner, 1838
Houstoniaceae Rafinesque, 1840
 510. *Henriqueziaceae* Bremekamp, 1957
 511. *Dialypetalanthaceae* Rizzini & Occhioni, 1948, *nom. cons.*
 182. *Theligonales* Nakai, 1942
 512. *Theligonaceae* Dumortier, 1829, *nom. cons.*
Cynocrambaceae Endlicher, 1841, *nom. illeg.*
 183. *Apocynales* Bromhead, 1838
Vincales Horaninow, 1847
 513. *Apocynaceae* A.L. Jussieu, 1789, *nom. cons.*
Vincaceae Vest, 1818
Cerberaceae Martinov, 1820
Pacouriaceae Martinov, 1820, *nom. illeg.*
Carissaceae Sprengel *ex* Weinmann, 1824
Plumeriaceae Horaninow, 1834
Ophiorylaceae C. Martius *ex* Perleb, 1838
Willughbeiaceae J. Agardh, 1858
 514. *Periplocaceae* Schlechter, 1905, *nom. cons.*
 184. *Asclepiadales* Dumortier, 1829
 515. *Asclepiadaceae* R. Brown, 1810, *nom. cons.*
Stapeliaceae Horaninow, 1834
Cynanchaceae G. Meyer, 1836
 185. *Gentianales* Lindley, 1833
Chironiales Grisebach, 1854
 516. *Gentianaceae* A.L. Jussieu, 1789, *nom. cons.*

Coutoubeaceae Martinov, 1820
Obolariaceae Martinov, 1820
Chironiaceae Horaninow, 1847
 517. *Saccifoliaceae* Maguire & Pires, 1978
 QQ. *Lamianae* Takhtajan, 1967
 186. *Jasminales* Dumortier, 1829
Oleales Lindley, 1833
Ligustrales Bischoff, 1840
 518. *Jasminaceae* A.L. Jussieu, 1789
Boliviariaceae Grisebach, 1838
Nyctanthaceae J. Agardh, 1858
 519. *Oleaceae* Hoffmannsegg & Link, 1813-1820, *nom. cons.*
Lilacaceae Ventenat, 1799
Fraxinaceae Vest, 1818
Ligustraceae G. Meyer, 1836
Forestieraceae Endlicher, 1841
Schreberaceae (Wight) Schnizlein, 1843-1870
Syringaceae Horaninow, 1847
 187. *Plantaginales* Lindley, 1833
 520. *Plantaginaceae* A.L. Jussieu, 1789, *nom. cons.*
Littorellaceae Gray, 1821
Psylliaceae Horaninow, 1834
 188. *Bignoniales* Lindley, 1833
 521. *Bignoniaceae* A.L. Jussieu, 1789, *nom. cons.*
Crescentiaceae Dumortier, 1829
 522. *Pedaliaceae* R. Brown, 1810, *nom. cons.*
Sesamaceae R. Brown *ex* Berchtold & J. Presl, 1820
 523. *Trapellaceae* Honda & Saki-saka, 1930
 524. *Martyniaceae* Stapf, 1895, *nom. cons.*
 189. *Scrophulariales* Lindley, 1833
Rhinanthales Dumortier, 1829
Veratales Dumortier, 1829
 525. *Buddlejaceae* K. Wilhelm,

1910, *nom. cons.*
 526. Myoporaceae R. Brown,
 1810, *nom. cons.*
Bontiaceae Horaninow, 1834
 527. Scrophulariaceae A.L.
 Jussieu, 1789, *nom. cons.*
Pedicularidaceae A.L. Jussieu,
 1789
Rhinanthaceae Ventenat, 1799
Antirrhinaceae Persoon, 1807
Caprariaceae Martinov, 1820
Chelonaceae Martinov, 1820
Digitalidaceae Martinov, 1820
Euphrasiaceae Martinov, 1820
Gratiolaceae Martinov, 1820
Linariaceae Martinov, 1820
Melampyraceae Richard *ex* Hooker & Lindley, 1821
Verbascaceae Rafinesque, 1821
Aragoaceae D. Don, 1835
Sibthoriaceae D. Don, 1835
Calceolariaceae Rafinesque, 1838
Veronicaceae Rafinesque, 1838
Oxycladaceae (Miers) Schnizlein,
 1855-1870
Limosellaceae J. Agardh, 1858
Erinaceae Duvau *ex* L. Pfeiffer, 1873
Paulowniaceae Nakai, 1949
 528. Spielmanniaceae J. Agardh,
 1858
 529. Selaginaceae Choisy, 1823,
nom. cons.
Hebenstretiaceae Horaninow, 1834
 530. Ellisophyllaceae Honda,
 1930
 531. Orobanchaceae Ventenat, 1799, *nom. cons.*
Phelypaeaceae Horaninow, 1834
Aeginetiaceae Livera, 1927
 190. Globulariales Dumortier,
 1829
 532. Retziaceae Bartling, 1830

533. Stilbaceae Kunth, 1831,
nom. cons.
 534. Globulariaceae Candolle,
 1805, *nom. cons.*
 191. Lentibulariales Lindley, 1833
Pinguicularales Dumortier, 1829
 535. Lentibulariaceae Richard,
 1808, *nom. cons.*
Utriculariaceae Hoffmannsegg & Link, 1820
Pinguiculaceae Dumortier, 1829
 192. Acanthales Lindley, 1833
 536. Nelsoniaceae (Nees) Sreemadhanvan, 1977
 537. Thunbergiaceae Bremekamp, 1954
 538. Meyeniaceae Sreemadhanvan, 1977
 539. Mendonciaceae Bremekamp, 1954
 540. Acanthaceae A.L. Jussieu, 1789, *nom. cons.*
 541. Justiciaceae Rafinesque, 1838
 542. Thomandersiaceae Sreemadhanvan. 1977
 193. Gesneriales Dumortier, 1829
 543. Gesneriaceae Dumortier, 1822, *nom. cons.*
Belloniaceae Martinov, 1820
Didymocarpaceae D. Don, 1822
Cyrtandraceae Jack, 1823
Besleriaceae Rafinesque, 1838
Ramondaceae Godron, 1850
 194. Callitrichales Dumortier, 1829
 544. Callitrichaceae Link, 1821, *nom. cons.*
Stellariaceae MacMillan, 1892, *nom. illeg.* non Dumortier, 1822
 195. Hippuridales Burnett, 1835
 545. Hippuridaceae Link, 1821,

nom. cons.

196. Verbenales Horaninow, 1847
 546. Verbenaceae Jaume Saint-Hilaire, 1805, *nom. cons.*
Viticaceae A.L. Jussieu, 1789
Lantanaceae Martinov, 1820
Aegiphilaceae Rafinesque, 1838
Siphonanthaceae Rafinesque, 1838
Durantaceae J. Agardh, 1858
Petreaceae J. Agardh, 1858
 547. Phrymaceae Schauer, 1847, *nom. cons.*
 548. Symphoremataceae (Meissner) Moldenke *ex* Reveal & Hoogland, 1991
 549. Cyclocheilaceae Marais, 1981
 550. Nesogenaceae Marais, 1981
 551. Avicenniaceae Endlicher, 1841, *nom. cons.*

197. Lamiales Bromhead, 1838
Menthales Burnett, 1835
 552. Chloanthaceae Hutchinson, 1959
 553. Lamiaceae Lindley, 1836, *nom. cons.*
Labiateae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Glechomaceae Martinov, 1820
Melittaceae Martinov, 1820
Salviaceae Sprengel *ex* Weinmann, 1824
Nepetaceae Horaninow, 1834
Menthaceae Burnett, 1835
 554. Salazariaceae Barkley, 1975.
Scutellariaceae Caruel, 1894

Liliopsida Cronquist, Takhtajan & Zimmermann, 1966
 IX. Alismatidae Takhtajan, 1967

RR. Butominae Takhtajan *ex* Reveal, 1992
 198. Butomales Hutchinson, 1934
 555. Butomaceae Richard, 1816, *nom. cons.*

SS. Alismatinae Takhtajan, 1967
 199. Alismatales Dumortier, 1829
 556. Limnocharitaceae Takhtajan *ex* Cronquist, 1981
 557. Alismataceae Ventenat, 1799, *nom. cons.*
Damasoniaceae Nakai, 1943
 200. Hydrocharitales Dumortier, 1829
Vallisneriales Nakai, 1949
Elodeales Nakai, 1950
 558. Hydrocharitaceae A.L. Jussieu, 1789, *nom. cons.*
Elodeaceae Dumortier, 1829
Stratiotaceae Link, 1829
Vallisneriaceae Link, 1829
Elismataceae Nakai, 1943, *nom. illeg.*
Enhalaceae Nakai, 1943
Blyzaceae (Ascherson & Gürck) Nakai, 1949
 559. Thalassiaceae Nakai, 1943
 560. Halophilaceae J. Agardh, 1858

TT. Najadinae Takhtajan *ex* Reveal, 1992
 201. Aponogetonales Hutchinson, 1934
 561. Aponogetonaceae J. Agardh, 1858, *nom. cons.*

202. Scheuchzeriales B. Boivin, 1956
 562. Scheuchzeriaceae F. Rudolfi, 1830, *nom. cons.*

203. Juncaginales Hutchinson, 1934
 563. Juncaginaceae Richard, 1808, *nom. cons.*

Triglochinaceae Chevallier, 1827
 564. *Lilaeaceae* Dumortier,
 1829, *nom. cons.*

Heterostylaceae Hutchinson, 1934
 565. *Maundiaceae* Nakai, 1943

204. *Potamogetonales* Dumortier,
 1829

Ruppiales Nakai, 1950
 566. *Potamogetonaceae* Du-
 mortier, 1829, *nom. cons.*

Hydrogetonaceae Link, 1829
 567. *Ruppiaceae* Horaninow
ex Hutchinson, 1934, *nom.*
cons.

205. *Posidoniales* Nakai, 1943
 568. *Posidoniaceae* Hutchin-
 son, 1934, *nom. cons., emend.*
prop.

Cauliniaceae J. Presl, 1846, *nom.*
illeg.

206. *Cymodoceales* Nakai, 1943
 569. *Cymodoceaceae* Norman
 Taylor, 1909, *nom. cons.*

570. *Zannichelliaceae* Dumor-
 tier, 1829, *nom. cons.*

207. *Zosterales* Nakai, 1943
 571. *Zosteraceae* Dumortier,
 1829, *nom. cons.*

208. *Najadales* Reichenbach, 1828
 572. *Najadaceae* A.L. Jussieu,
 1789, *nom. cons.*

K. *Triurididae* Takhtajan *ex* Re-
 veal, 1992

UU. *Triuridanae* Thorne *ex* Re-
 veal, 1992

209. *Triuridales* J.D. Hooker *in*
 Le Maout & Decaisne, 1876
 573. *Triuridaceae* Gardner,
 1843, *nom. cons.*

574. *Lacandoniaceae* E. Martí-
 nes & C.H. Ramos, 1989

I. *Liliidae* Takhtajan, 1967
 √V. *Lilianae* Takhtajan, 1967

210. *Melanthiales* R. Dahlgren
ex Reveal, 1992
 575. *Melanthiaceae* Batsch,
 1802, *nom. cons.*

Veratraceae Vest, 1818

Heloniadaceae J. Agardh, 1858

Nartheciaceae J.K. Small, 1933

Lophiolaceae Nakai, 1943
 576. *Petrosaviaceae* Hutchin-
 son, 1934, *nom. cons.*

577. *Campynemataceae* Du-
 mortier, 1829

211. *Alstroemerales* Hutchin-
 son, 1934
 578. *Alstroemeriaceae* Dumor-
 tier, 1829, *nom. cons.*

212. *Liliales* Perleb, 1826
Colchicales Dumortier, 1829
Paridales Dumortier, 1829
 579. *Colchicaceae* Candolle,
 1805, *nom. cons.*

Merenderaceae Mirbel, 1804
Bulbocodiaceae R.A. Salisbury,
 1866
 580. *Uvulariaceae* A. Gray
ex Kunth, 1843, *nom. cons.*
prop.

Compsoaceae Horaninow, 1834
 581. *Liliaceae* A.L. Jussieu,
 1789, *nom. cons.*

Liriaceae Batsch *ex* Borckhaus-
 en, 1797

Tulipaceae Batsch *ex* Borck-
 hausen, 1797

Erythroniaceae Martinov, 1820

Fritillariaceae R.A. Salisbury,
 1866
 582. *Calochortaceae* Dumortier,
 1829

583. *Medeolaceae* (S. Wat-
 son) Takhtajan, 1987

584. *Trilliaceae* Lindley, 1846,
nom. cons.

Paridaceae Dumortier, 1827
 213. *Iridales* Dumortier, 1829
Iziiales Lindley, 1836
 585. *Geosiridaceae* Jonker, 1939,
nom. cons.
 586. *Iridaceae* A.L. Jussieu,
 1789, *nom. cons.*
Crocaceae Vest, 1818
Ixiaceae Horaninow, 1834
Galaziaceae Rafinesque, 1836
Gladiolaceae Rafinesque, 1838
Hewardiaceae Nakai, 1943, *nom.*
illeg.
Isophysidaceae (Hutchinson) F.
 Barkley, 1948
 214. *Tecophilaeales* Traub *et*
 Reveal, 1993
 587. *Tecophilaeaceae* F. Ley-
 bold, 1862, *nom. cons.*
Androsynaceae R.A. Salisbury,
 1866
Cyanellaceae R.A. Salisbury,
 1866
Conantheraceae (D. Don) J.D.
 Hooker, 1873
 588. *Cyanastraceae* Engler,
 1900, *nom. cons.*
 589. *Eriospermaceae* Endlicher,
 1841
 215. *Burmanniales* Heintze, 1927
 590. *Burmanniaceae* Blume,
 1827, *nom. cons.*
Tripterellaceae Dumortier, 1829
 591. *Thismiaceae* J. Agardh,
 1858, *nom. cons.*
 592. *Corsiaceae* Beccari, 1878,
nom. cons.
 216. *Asparagales* Bromhead, 1838
 593. *Convallariaceae* Horani-
 now, 1834
Aspidistraceae Endlicher, 1841
Platymetraceae R.A. Salisbury,
 1866, *nom. illeg.*

Polygonataceae R.A. Salisbury,
 1866
 594. *Ophiopogonaceae* Endlicher,
 1841
Peliosanthaceae R.A. Salisbury,
 1866
 595. *Asparagaceae* A.L. Jussieu
 1789, *nom. cons.*
 596. *Ruscaceae* Sprengel *et*
 Hutchinson, 1934, *nom. cons.*
 217. *Asteliales* Dumortier, 1829
 597. *Dracaenaceae* R.A. Sal-
 isbury, 1866, *nom. cons.*
Sansevieriaceae Nakai, 1936
 598. *Nolinaceae* Nakai, 1943
 599. *Herreriaceae* Endlicher,
 1841
 600. *Asteliaceae* Dumortier,
 1829
 218. *Hanguanales* R. Dahlgren
et Reveal, 1992
 601. *Hanguanaceae* Airy Shaw,
 1965
 219. *Agavales* Hutchinson, 1934
 602. *Asphodelaceae* A.L. Jussieu
 1789
 603. *Aloaceae* Batsch, 1802
 604. *Anthericaceae* J. Agardh,
 1858
Lazmanniaceae Bubani, 1901-
 1902
 605. *Aphyllanthaceae* Bur-
 nett, 1835
 606. *Luzuriagaceae* J.P. Lotsy,
 1911
 607. *Phormiaceae* J. Agardh,
 1858
Dianellaceae R.A. Salisbury, 1866
 608. *Doryanthaceae* R. Dahlgren
& Clifford, 1985
 609. *Lanariaceae* Huber *et* R.
 Dahlgren, 1988
 610. *Hemerocallidaceae* R. Brow-

1810

611. *Agavaceae* Endlicher, 1841, *nom. cons.*

Yuccaceae J. Agardh, 1858

612. *Hostaceae* B. Mathew, 1988, *nom. cons. prop.*

Funkiaceae Horaninow, 1834

613. *Blandfordiaceae* Dahlgren & Clifford, 1985

614. *Dasypogonaceae* Dumortier, 1829

Kingiaceae Endlicher, 1838

615. *Lomandraceae* J.P. Lotsy, 1911

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616. *Calectasiaceae* Endlicher, 1838

617. *Xanthorrhoeaceae* Dumortier, 1829, *nom. cons.*

20. *Alliales* Traub, 1972

618. *Ixiolirionaceae* (Pax) Nakai, 1943

619. *Hyacinthaceae* Batsch *ex* Borckhausen, 1797

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620. *Hesperocallidaceae* Traub, 1972

621. *Alliaceae* J. Agardh, 1858, *nom. cons.*

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622. *Milulaceae* Traub, 1972

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623. *Amaryllidaceae* Jaume Saint-Hilaire, 1805, *nom. cons.*

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624. *Hypoxidaceae* R. Brown, 1814, *nom. cons.*

222. *Velloziales* R. Dahlgren *ex* Reveal, 1992

625. *Velloziaceae* Endlicher, 1841, *nom. cons.*

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626. *Acanthochlamydaceae* (S.C. Chen) P.C. Kao, 1992

223. *Smilacales* Lindley, *Niz. Pl.* 23. 1833

627. *Philesiaceae* Dumortier, 1829, *nom. cons.*

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628. *Ripogonaceae* Conran & Clifford, 1985

629. *Smilacaceae* Ventenat,

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630. Petermanniaceae Hutchinson, 1934, *nom. cons.*

224. Dioscoreales J.D. Hooker, 1876

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631. Stenomeridaceae J. Agardh, 1858, *nom. cons.*

632. Dioscoreaceae R. Brown, 1810, *nom. cons.*

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633. Trichopodaceae Hutchinson, 1934, *nom. cons.*

634. Stemonaceae Engler, 1887, *nom. cons.*

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635. Croomiaceae Nakai, 1937

636. Pentastemonaceae Duyfjes, 1992

225. Taccales Dumortier, 1829

637. Taccaceae Dumortier, 1829, *nom. cons.*

226. Orchidales Dumortier, 1829

638. Apostasiaceae Lindley, 1833, *nom. cons., emend. prop.*

639. Neuwiediaceae (Burns-Balogh & Funk) R. Dahlgren *ex* Reveal & Hoogland, 1991

640. Cypripediaceae Lindley, 1833

641. Orchidaceae A.L. Jussieu, 1789, *nom. cons.*

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227. Hydatellales Cronquist *in* Takhtajan, 1980

642. Hydatellaceae Hamann, 1976

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229. Philydrales Dumortier, 1829

644. Philydraceae Link, 1821, *nom. cons.*

230. Pontederiales J.D. Hooker, 1876

645. Pontederiaceae Kunth, 1816, *nom. cons.*

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231. Haemodorales Hutchinson, 1934

646. Haemodoraceae R. Brown, 1810, *nom. cons.*

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647. Conostylidaceae (Pax) Takhtajan, 1987

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648. Sparganiaceae F. Rudolfi, 1830, *nom. cons.*

649. Typhaceae A.L. Jussieu, 1789, *nom. cons.*

AAA. Commelininae Takhtajan, 1967

233. Xyridales Lindley, 1846

650. Rapateaceae Dumortier, 1829, *nom. cons.*

651. Xyridaceae C. Agardh, 1823, *nom. cons.*

652. Abolbodaceae Nakai, 1943

234. Commelininales Dumortier, 1829

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653. Cartonemataceae Pichon,

1946, *nom. cons.*

654. Commelinaceae R. Brown, 1810, *nom. cons.*

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235. Mayacales Nakai, 1943

655. Mayacaceae Kunth, 1842, *nom. cons.*

236. Eriocaulales Nakai, 1930

656. Eriocaulaceae Palisot de Beauvois *ex* Desvaux, 1828, *nom. cons.*

BBB. Juncanae Takhtajan, 1967

237. Juncales Dumortier, 1829

657. Thurniaceae Engler, 1907, *nom. cons.*

658. Juncaceae A.L. Jussieu, 1789, *nom. cons.*

238. Cyperales Burnett, 1835

659. Cyperaceae A.L. Jussieu, 1789, *nom. cons.*

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239. Restionales Perleb, 1838

660. Flagellariaceae Dumortier, 1829, *nom. cons.*

661. Joinvilleaceae Tomlinson & A.C. Smith, 1970

662. Restionaceae R. Brown, 1810, *nom. cons.*

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663. Anarthriaceae D. Cutler & Airy Shaw, 1965

664. Ecdeiocoleaceae D. Cutler & Airy Shaw, 1965

665. Centrolepidaceae Endlicher, 1836, *nom. cons.*

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240. Poales Burnett, 1835

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666. Anomochloaceae Nakai, 1943

667. Streptochaetaceae Nakai, 1943

668. Bambusaceae Burnett, 1835

669. Poaceae (R. Brown) Barnhart, 1895, *nom. cons.*

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Miliaceae Burnett, 1835

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Zeaceae Kerner, 1891

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Eragrostidaceae (Stapf) Herter, 1940

Pappophoraceae (Kunth) Herter, 1940

Lepturaceae (Holmberg) Herter, 1940

Pharaceae (Stapf) Herter, 1940

Sporobolaceae Herter, 1941

Tristeginaceae (Link) Herter, 1941

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XIII. *Zingiberidae* Cronquist, 1978

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670. *Musaceae* A.L. Jussieu, 1789, *nom. cons.*

671. *Strelitziaceae* (Schumann) Hutchinson, 1934, *nom. cons.*

672. *Heliconiaceae* (A. Richard) Nakai, 1941

673. *Lowiaceae* Ridley, 1924, *nom. cons.*

242. *Zingiberales* Grisebach, 1854

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674. *Zingiberaceae* Lindley, 1835, *nom. cons.*

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Alpiniaceae R. Brown *ex* F. Rudolphi, 1830

675. *Costaceae* (Meisner) Nakai, 1941

243. *Cannales* Dumortier, 1829

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677. *Marantaceae* Petersen, 1888, *nom. cons.*

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678. *Acoraceae* Martinov, 1820

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679. *Araceae* A.L. Jussieu, 1789, *nom. cons.*

Pistiaceae Richard *ex* C. Agardh, 1822

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Orontiaceae Bartling, 1830

Arisaraceae Rafinesque, 1838

Pothaceae Rafinesque, 1838

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Caladiaceae R.A. Salisbury, 1866

Dracontiaceae R.A. Salisbury, 1866

680. *Lemnaceae* Gray, 1821, *nom. cons.*

Wolffiaceae Bubani, 1901-1902

EEE. *Cyclanthanae* Thorne *ex* Reveal, 1992

246. *Cyclanthales* Nakai, 1930

681. *Cyclanthaceae* Poiteau *ex* A. Richard, 1824, *nom. cons., emend. prop.*

FFF. *Pandananae* Thorne *ex* Reveal, 1992

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682. *Pandanaceae* R. Brown, 1810, *nom. cons.*

Freycinetiaceae Brongniart *ex* Le Maout & Decaisne, 1868

GGG. *Arecanae* Takhtajan, 1967

248. *Arecales* Bromhead, 1840

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683. *Arecaceae* Schultz-Schultzenstein, 1832, *nom. cons.*

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ERRATUM

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In MacRoberts & MacRoberts (1993), we reported that the age estimated from cores of *Pinus palustris* P. Mill. in two glades ranged from 120 to 380 years old. The upper figure is a miscalculation (one measurement was doubled) and the correct range is 120 to 220 years old.

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MacRoberts, M.H. & B.H. MacRoberts. 1993. Why don't west Louisiana bogs and glades grow up into forests? *Phytologia* 74:26-34.

A NEW SPECIES OF *PERITYLE* (ASTERACEAE, HELENIEAE) FROM SONORA, MEXICO

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ABSTRACT

A new species, *Perityle alamosana* B.L. Turner, is described from southern Sonora, México. It is related to *P. batopilensis* and *P. gentryi* but readily distinguished by a combination of features including erect habit, glandular pubescent stems, and well developed ray florets.

KEY WORDS: Asteraceae, Helenieae, *Perityle*, México, Sonora

Routine identification of Mexican Asteraceae has revealed the following novelty.

***Perityle alamosana* B.L. Turner, sp. nov.** TYPE: MEXICO. Sonora: Rancho San Pedro and upper entrance of the cañon, 4 km N of Alamos (108° 42.3' W, 27° 02.8' N), "Evergreen forest", 480 m, 13-15 Mar 1991, P.S. Martin, C. Lindquist, & S. Meyer s.n. (HOLOTYPE: TEX; Isotype: ARIZ).

Peritylae batopilensi A.M. Powell, similis sed caulibus ac pedicellis dense glandulosi-pubescentibus (vs. dense pilosis trichomatibus eglandulosis translucentibus) et capitulis radiatis (vs. eradiatis) differt.

Erect suffruticose perennial herbs 10-20 cm high, the basal portions decidedly woody. Stems densely glandular pilose with hairs ca. 0.25 mm long, interspersed among these a smattering of much longer eglandular translucent hairs 1-2 mm long. Midstem leaves mostly 2.0-3.5 cm long, 1.5-2.5 cm wide; petioles 1.0-1.5 cm long, pubescent like the stems; blades deltoid to cordate in outline, the undersurfaces atomiferous glandular and moderately pilose,

especially along the veins, the margins irregularly lacerate-dentate. Heads radiate, single on peduncles 1.5-2.5 cm long, the latter pubescent like the stems. Involucres campanulate, 5.5-6.0 mm high, the bracts pubescent like the peduncles. Ray florets ca. 8, the ligules yellow, ca. 6 mm long, 2 mm wide. Disk florets 20-30, the corollas yellow, 3.5-4.0 mm long, the tube ca. 1 mm long, glandular pubescent, the lobes ca. 0.5 mm long, each usually possessing 1-3, translucent hairs. Anthers yellow. Style branches linear, gradually acuminate. Achenes (immature) ca. 3 mm long, the body sparsely hispid, otherwise glabrous, epappose.

This species is closely related to *Perityle batopilensis* A.M. Powell and *P. gentryi* A.M. Powell; indeed, I had considered both of the latter to be synonymous in an early treatment of *Perityle* for México. However, more detailed examination of the type material of *P. batopilensis* and *P. gentryi* (TEX!) has now convinced me that these are good species. These several taxa belong to the subgenus *Laphamia* (sensu Powell 1973, 1983) and have a syndrome of characters that relate them: similar campanulate involucres with similar vestiture, short glandular hairs, long translucent eglandular hairs, or combinations thereof, and similar disk corollas, the lobes possessing 1-3 translucent hairs. The following couplets readily distinguish the taxa.

1. Stems repent or trailing. *P. gentryi*
1. Stems erect or ascending. (2)
 2. Stems pilose with mostly translucent eglandular hairs 1-2 mm long; ray florets with ligules absent; Chihuahua. *P. batopilensis*
 2. Stems pilose with mostly glandular hairs; ray florets ligulate; Sonora. *P. alamosana*

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DARCYA (SCROPHULARIACEAE), A NEW GENUS FROM CENTRAL AND SOUTH AMERICA

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ABSTRACT

Darcya, a new genus belonging to the Scrophulariaceae is proposed. It is represented by three localized species previously treated within the genus *Stemodia* (s.l.), as follows: *D. costaricensis* (B.L. Turner) B.L. Turner, *comb. nov.*, from Costa Rica; *D. mutisii* (Fern. Alonso) B.L. Turner, *comb. nov.*, from Colombia; and *D. reliquiarum* (D'Arcy) B.L. Turner & C. Cowan, *comb. nov.*, from Panamá. Descriptions of the Central American taxa are provided, along with a comprehensive key for identification purposes. *Darcya* does not appear to be especially close to *Stemodia* (s.l.), possessing a combination of unique characters not found in that genus or yet other genera of the tribe Gratiroleae in which it is positioned.

KEY WORDS: *Darcya*, *Stemodia*, Scrophulariaceae, Gratiroleae

Preparation of a synopsis of *Stemodia* (s.l.) for North and South America (Turner & Cowan 1993; in prep.) has occasioned the present paper. In our treatment for the New World we recognized ca. 32 species. In studying the considerable diversity within this group it became apparent that the several species discussed here could not be readily accommodated within *Stemodia* (s.l.) nor could they be readily placed in any other genus of our acquaintance. This was presaged by D'Arcy who noted that the generitype, *Darcya reliquiarum*, did not conform to any of the intrageneric groupings or closely related genera proposed by Minod (1918), "and might warrant recognition at the generic level". *Darcya* has the calyx and capsular characters of *Stemodia* (s.l.), but differs from the rest of the species in having pubescent anthers, very short styles, well defined terminal racemes, 3-5 principal nerves arising from near the base of the blade, and peculiar estipitate trapezoidal seeds.

Darcya (Scrophulariaceae) B.L. Turner & C. Cowan, *gen. nov.*

Stemodiae L. (*nom. cons.*) similis sed inflorescentia racemosa terminali, foliis nerviis principalibus 3-5, antheris pubescentibus, fructibus stylis corpori capsulae multo brevioribus, et seminibus trapezoidibus paginis alveolati-reticulatis distinctus.

Suffruticose perennial herbs to 1 m high. Leaves opposite, simple, petiolate, with 3 principal nerves or somewhat subpinnately nerved, the margins serrulate. Flowers arranged in terminal bracteate racemes. Calyx ebracteolate, the lobes free and essentially alike. Corollas tubular, apparently zygomorphic with well defined upper and lower lobes. Anther thecae pubescent dorsally with stiff white hairs. Capsules ovoid (4-5 mm high), 4 valvate, the styles persistent but much shorter than the body (ca. 0.3 mm long). Seeds trapezoidal, stipitate, alveolate-reticulate.

Type species, *Darcya reliquiarum* (D'Arcy) B.L. Turner & C. Cowan.

KEY TO SPECIES

1. Branches of the inflorescence glabrous; Costa Rica. *D. costaricensis*
1. Branches of the inflorescence pubescent; Panamá and Colombia. (2)
 2. Branches of the inflorescence glandular pubescent; corollas 7.0-8.2 mm long; Colombia. *D. mutisii*
 2. Branches of the inflorescence eglandular pubescent; corollas 4-5 mm long; Panamá. *D. reliquiarum*

Darcya costaricensis (B.L. Turner) B.L. Turner, *comb. nov.* BASIONYM: *Stemodia costaricensis* B.L. Turner, *Phytologia* 73:253. 1992. TYPE: COSTA RICA. Cartago Province: "1-4 km beyond first bridge within Hydroelectric Plant Property (Instituto Costaricensis Electricidad) enroute to the reservoir at the road terminus," 4800-4900 ft, common but very local, 4 Mar 1981, F. Almeda & K. Nakai 4734 (HOLOTYPE: TEX; Isotype: CAS).

Sprawling or trailing suffruticose glabrous perennial herbs 10-100 cm high. Midstem leaves mostly 2-4 cm long, 1.0-1.8 cm wide; petioles mostly 3-8 mm long; blades broadly ovate to triangular ovate, trinervate to somewhat subpinnately nerved, minutely punctate beneath, the margins serrulate. Flowers arranged in terminal bracteate racemes 3-8 cm long, the pedicels glabrous,

mostly 8-14 mm long. Calyx glabrous, ebracteolate, mostly 3-4 mm long, the lobes essentially alike and free to the base. Corollas reportedly deep violet blue and "Lobelia-like", the tube ca. 3 mm long, the upper 2 lobes 2.5-3.0 mm long, the lower 3 lobes mostly 3-6 mm long, the central lobe 4-6 mm long. Anther thecae ca. 0.5 mm long, pubescent, separated by a globose connective. Capsule ovate, ca. 4 mm long. Seeds numerous, brown, trapezoidal, finely ornate like the hull of a peanut, ca. 0.5 mm long.

DISTRIBUTION: Known only from the vicinity of the type locality; flowering November-January.

ADDITIONAL SPECIMENS EXAMINED: COSTA RICA. Cartago: Twenty or more specimens as given with the original description.

***Darcya reliquiarum* (D'Arcy) B.L. Turner & C. Cowan, comb. nov.** **BASIONYM:** *Stemodia reliquiarum* D'Arcy, Ann. Missouri Bot. Gard. 66:258. 1979. **TYPE:** PANAMA. Chiriquí: La Popa above Boquete, 1500-2500 m, 20 Mar 1977, W.G. D'Arcy 10893 (HOLOTYPE: MO!; progeny of type material grown from seed, F!, K!, MO!).

Sprawling perennial herbs to 40 cm high. Stems sparingly branched, sparsely pubescent, glabrescent with age. Midstem leaves mostly 3-6 cm long, 1.4-2.6 cm wide; petioles 5-10 mm long, gradually tapered upon by the blades; blades ovate, with 3 principal nerves from near the base, glabrous or nearly so, minutely glandular punctate beneath, the margins irregularly serrate. Flowers arranged mostly in terminal bracteate racemes, the pedicels sparsely pilose, mostly 9-16 mm long. Sepals 2-4 mm long, all alike, without basal bracts, glabrous or nearly so. Corollas 4-5 mm long, blue, glabrous or nearly so, the lobes subequal, 2-3 mm long, minutely pubescent ventrally. Anther thecae ca. 0.25 mm long, pubescent dorsally with conspicuous stiff white hairs, the thecae sessile or one of these on a short stipelike connective. Capsule ovate (in outline), 4-5 mm high, the persistent style ca. 0.3 mm long, ca. as long as the stigmatic area, 4 valvate. Seeds trapezoidal, alveolate-reticulate, estipitate, ca. 0.3 mm long.

DISTRIBUTION: Panamá, where it is known only from cloud forests near Boquete, 1200-1700 m; flowering July-March.

D'Arcy provided an illustration of this species along with his original description.

***Darcya mutisii* (Fern. Alonso) B.L. Turner, comb. nov.** **BASIONYM:** *Stemodia mutisii* Fern. Alonso, An. Jard. Bot. Madrid 44:394. 1987. **TYPE:** COLOMBIA. Depto. de Cundinamarca, Mpio. de San Bernardo, 1600 m, 27 Jun 1948, M. Schneider 581-A (HOLOTYPE: COL 81234).

This recently described species was first collected and illustrated following the Real Expedición Botánica del Nuevo Reino de Granada, under the direction of Mutis (1760-1790). The original illustration has been republished in black and white by F. Alonso with his original description. While I have not examined type material, the illustration and description leaves little doubt that the plant concerned belongs to *Darcya*. Indeed, it is closely similar to both *D. reliquiarum* and *D. costaricensis* but readily distinguished by its glandular pubescent inflorescence.

ACKNOWLEDGMENTS

We are grateful to Guy Nesom for the Latin diagnosis and to him and T.P. Ramamoorthy for reviewing the manuscript.

LITERATURE CITED

Minod, M. 1918. Contribution à l'étude du genre *Stemodia* et du groupe des Stémodiées en Amerique. Bull. Soc. Bot. Geneve, ser. II 10:155-252.

Turner, B.L. & C. Cowan. 1993. Taxonomic overview of *Stemodia* (Scrophulariaceae) for North America and the West Indies. *Phytologia* 74:61-103.

BOOKS RECEIVED

Inducible Plant Proteins, Their Biochemistry and Molecular Biology. J.L. Wray (ed.). Society for Experimental Biology Seminar Series 49. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xvi. 309 pp. \$89.95 (hardcover). ISBN 0-521-40170-4.

Drawn from a 1991 symposium, 54 authors have contributed fourteen papers to this volume. Papers treat topics such as proteins produced in response to or in conjunction with phosphate starvation, nitrate reduction, Crassulacean acid metabolism, growth hormones, ripening, nodule formation, anaerobic respiration, heat shock, cold shock, and light stimuli.

The Language of the Cell. Claude Kordon. Translated from the French by William J. Gladstone. McGraw-Hill Horizons of Science Series. McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, New York 10020. 1993. 104 pp. \$9.95 (paper). ISBN 0-07-035875-3.

This book, part of a series to bring science to nonscientists, examines the transfer of information within and between cells. The mechanisms of message production, transfer, and receipt are discussed. Evolutionary processes affecting cellular communication are considered.

Life Strategies of Succulents in Deserts, With Special Reference to the Namib Desert. Dieter J. von Willert, Benno M. Eller, Marinus J.A. Werger, Enno Brinckmann, & Hans-Dieter Ihlenfeldt. Cambridge Studies in Ecology. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xx. 340 pp. \$89.95 (cloth). ISBN 0-521-24468-4 (cloth).

Chapter 1 defines, through morphology and anatomy, what the authors include as succulent plants, as well as information on evolution and geographic distribution of succulents. General information on deserts is found in Chapter 2, followed by a more detailed discussion of the Namib Desert in Chapter 3. Chapter 4 fills over half of the book and is devoted to discussion of physiological attributes of succulent plants. The final chapter examines life strategies of succulents.

The Olympic Rainforest, An Ecological Web. Ruth Kirk with Jerry Franklin. The University of Washington Press, P.O. Box 50096, Seattle, Washington 98145-5096. 1992. 128 pp. \$35.00 (cloth); \$17.50 (paper). ISBN 0-295-97195-9 (cloth); 0-295-97187-8 (paper).

A beautifully illustrated volume, this book provides a glimpse of the Olympic Rainforest. Other temperate wet forests are mentioned in the book, but the present work deals almost exclusively with the forests of the Olympic Peninsula. Animals as well as plants are included in the discussions and photographs.

Plant Biomechanics, An Engineering Approach to Plant Form and Function. Karl J. Niklas. The University of Chicago Press, 5801 Ellis Avenue, Chicago, Illinois 60637. 1992. xiv. 607 pp. \$75.00 (cloth); \$29.95 (paper). ISBN 0-226-58630-8 (cloth); 0-226-58641-6 (paper).

This book applies technical engineering analyses to plant structures. It contains basic introductory information on plants, mechanics, and effects of geometry on mechanics. These introductory chapters are followed with more in depth treatment of water relations, cell walls, mechanics of various tissue types, mechanics of organs, mechanics of the entire plant, fluid mechanics (primarily treating airflow), and effects of mechanical limiting principles on plant evolution. In addition to black and white photographs and line drawings, the book contains four color plates.

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